TRANSIT: WHY SEATTLE SAID NO

June 8, 1970

RAILWAY AGE

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ADVERTISING: Are railroads getting their story across?

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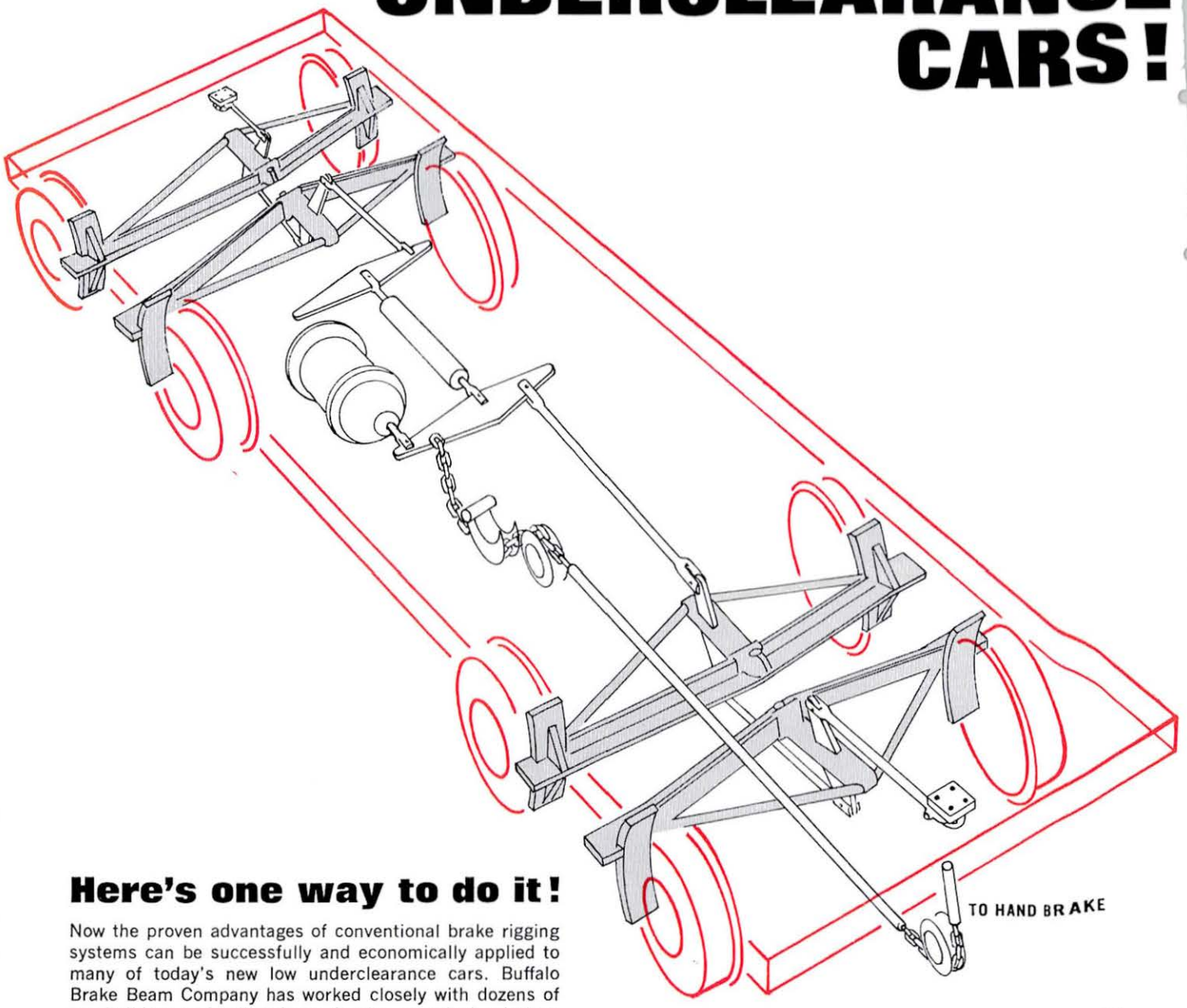

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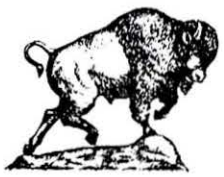

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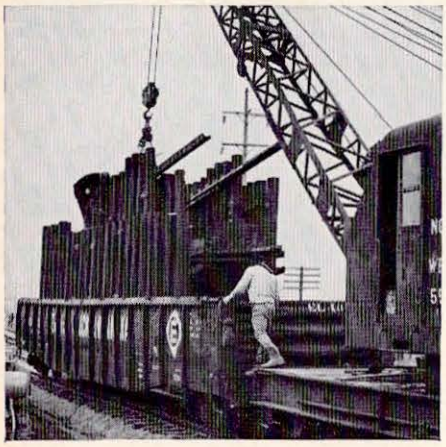

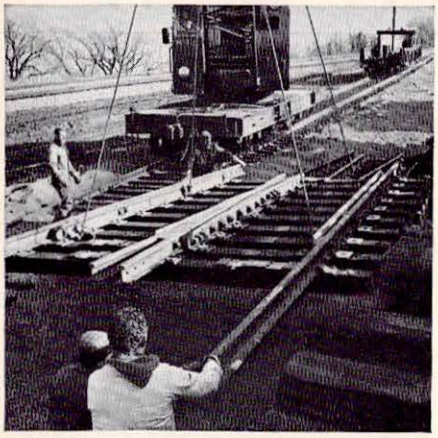

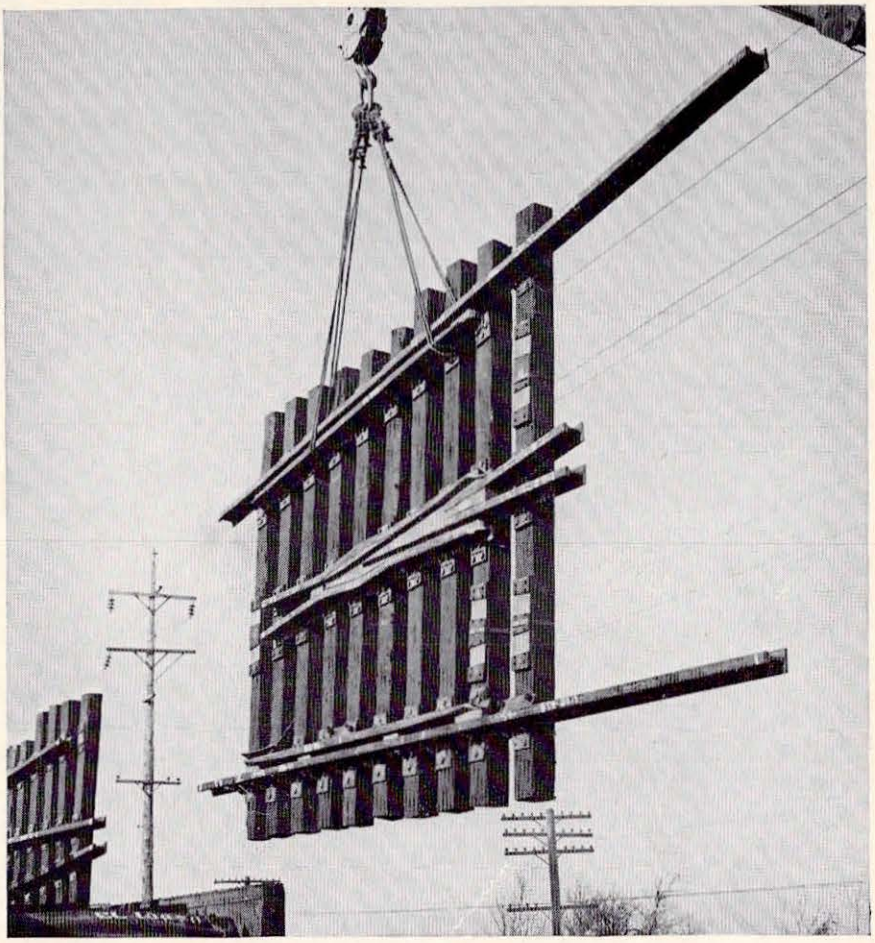

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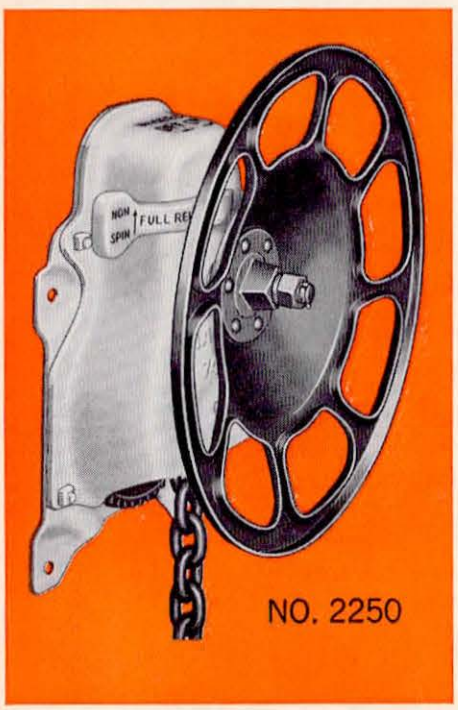

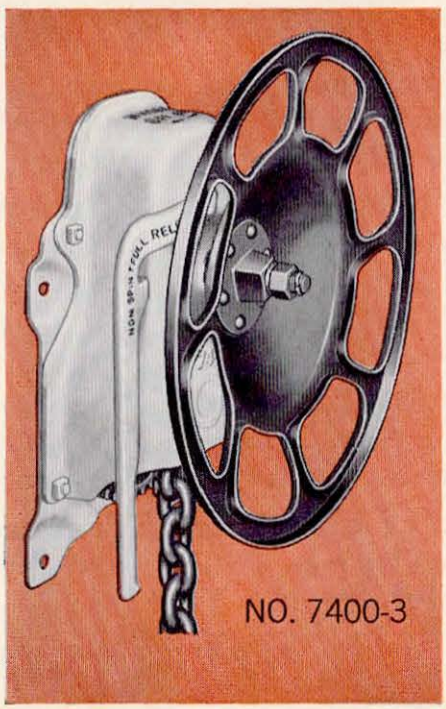

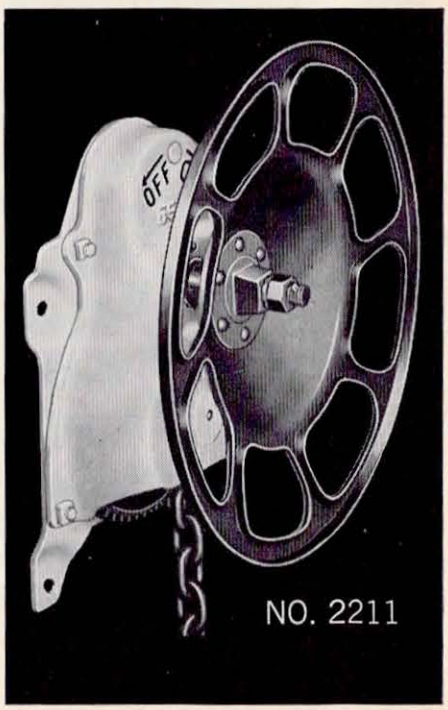

Circle 3 on coupon page 87

RAILWAY AGE

June 8, 1970 • Vol. 168, No. 12

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Railway Age, established in 1856, is indexed by the Business Periodicals Index, the Engineering Index Service and the Public Affairs Information Service. Name registered in U.S. Patent Office and Trade Mark Office in Canada.
Published semi-monthly by the Simmons-Boardman Publishing Corporation, 508 Birch St., Bristol, Conn. 06010.
Railroad employees' subscription rate, U.S. possessions, Canada and Mexico, $6 one year, $9 two years, all others $15 for one year, payable in advance and postage paid. To railroad employees elsewhere in the western hemisphere, $10 a year; in the eastern hemisphere, $15 a year. Single copies 60¢, except special issues.
Address all subscriptions, change of address and correspondence concerning them to Subscription Dept., Railway Age, P.O. Box 530, Bristol, Conn. 06010.
Change of address should reach us three weeks in advance of next issue date. Send old address with new enclosing, if possible, your address label. Post Office will not forward copies unless you provide extra postage.

Member of ABC Audited Paid Circulation RPI Railway Progress Institute

Circulation Dept.: John Rogers Director of Circulation, 30 Church St., New York, N.Y. 10007. POSTMASTER—SEND FORM 3579 TO P.O. BOX 530, BRISTOL, CONN. 06010.
Printed at the Hughes Printing Co., 34 North Crystal St., East Stroudsburg, Pa. 18301. Second-class postage paid at Bristol, Conn., and at additional mailing offices.

Inside

LUTHER MILLER

COMMUNICATION FAILURE

In the past, railroad advertising was all too effective, suggests one ad man who participated in the survey that led to this week's article (p. 38). "It is evident," says he, "that the advertising by railroads of their passenger service was apparently too well done and too long remembered by a great share of the American public, many of whom read the ads but never made a train trip."

While total railroad ad spending is little changed from 10 years ago, a far larger chunk is now going to promote freight service. The result is that passenger ads today are relatively rare. Too rare, perhaps, in some cases.

On May 26, Carlos Villarreal, Urban Mass Transportation Administrator in DOT, arrived in Newark, N.J., two hours late for a meeting with railroad executives. His plane had been delayed by bad weather. Asked why, under these conditions, he had not taken the Metroliner, he replied, according to the Newark News: "I never thought of the train, honestly."

It is not our intention here to be critical of Mr. Villarreal. With the possible exception of DOT Secretary Volpe, no one man has done more in the past year to promote the cause of efficient mass transportation than UMTA's chief.

What this does suggest is that it is time, perhaps, to get that long-delayed Metroliner ad program under way. If it doesn't occur to DOT's own people to take the train, even when flying is clearly for the birds, how can others be expected to get the message?

BOEING, THE SST, AND TRANSIT

One argument advanced for pumping more money into the supersonic transport, which has already swallowed $700 million, is that dumping the SST project at this point would be a severe economic blow to Seattle, Boeing's home town. A big argument against the SST, on the other hand, is that the same money would be better spent on mass transit.

The situation is shot through with ironies. Consider these: (1) Seattle recently defeated a $440-million transit bond issue —partly because of a steep drop in employment at Boeing (p. 42). (2) The chairman of the transit committee of Forward Thrust, which spearheaded Seattle's unsuccessful transit drive, was J. Harry Goldie—who also happens to be corporate director of planning for Boeing.

Congressman Henry S. Reuss (D.-Wis.), who is not unsympathetic to Seattle's economic distress but who is more concerned about the whole nation's mass-transportation plight, may have the best solution of all: "Why in the name of common sense do we not put Boeing to work making a mass transit vehicle?"

A great idea. Out with the SST. And in with STS—super transit system.

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If you want to upgrade your lubricants, check CITGO'S New RD-754 and RD-836 diesel engine oils. They're the lubricants that meet the severe service requirements of the new high-power railroad locomotives . . . and are approved by the companies who build the engines!

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RAILWAY AGE

JUNE 8, 1970

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Short and Significant

TECHNOLOGY

EMD RESEARCHES NEW TRAIN CONCEPT

In a letter to stockholders, General Motors Chairman J. M. Roche has disclosed that GM's Electro-Motive Division is "researching and developing a light-weight, high-speed, diesel-electric-powered commuter train to link major metropolitan areas that are about 300 miles apart." Roche says EMD has also developed "a new design for commuter locomotives with improved operating characteristics and greater electrical capacity, substantially increasing passenger comfort." If present discussions with the railroads and with the Department of Transportation are favorable, prototype trains will be built.

AIRESEARCH WINS L.I.M. CONTRACT

AiResearch Corp. of Torrance, Calif., has won a $770,000 DOT contract for the design of a second-generation, 8,000-hp linear induction motor (L.I.M.) to power a 300-mph tracked air cushion research vehicle (TACRV) now being designed by Grumman Aerospace Corp. AiResearch, a division of Garrett, is already testing a 2,500-hp L.I.M. and will send the test vehicle to the Federal Railroad Administration's Pueblo, Colo., test facility in early 1971. This is a conventional steel-wheeled vehicle capable of 250-mph speeds. Still to be awarded is a contract for design of a wayside power collection system for the L.I.M.

TRANSIT

CTA AID: THE PLOT THICKENS

Will the Chicago Transit Authority have a financial crisis? Will the fare go up to 50 cents or higher? Tune in later for details. After weeks of debate on CTA aid, the Illinois House and Senate deadlocked —and adjourned without taking any action at all (RA, May 11, p. 47). CTA's hopes—and those of its riders—now appear to rest upon the governor's calling a special session of the legislature to try again.

L. A. AIRPORT WILL GET FIRST TACV

DOT Secretary John A. Volpe disclosed last week that Los Angeles Airport will have the nation's first passenger-carrying tracked air-cushion vehicle (TACV) system. The 16.3-mile line will run from the airport up the San Diego Freeway to the San Fernando Valley. Cost, including guideways and stations, will be $50 million, to be split between DOT and the Los Angeles Department of Airports, said Secretary Volpe.

GOVERNMENT

INCENTIVE PER-DIEM PLAN POSTPONED

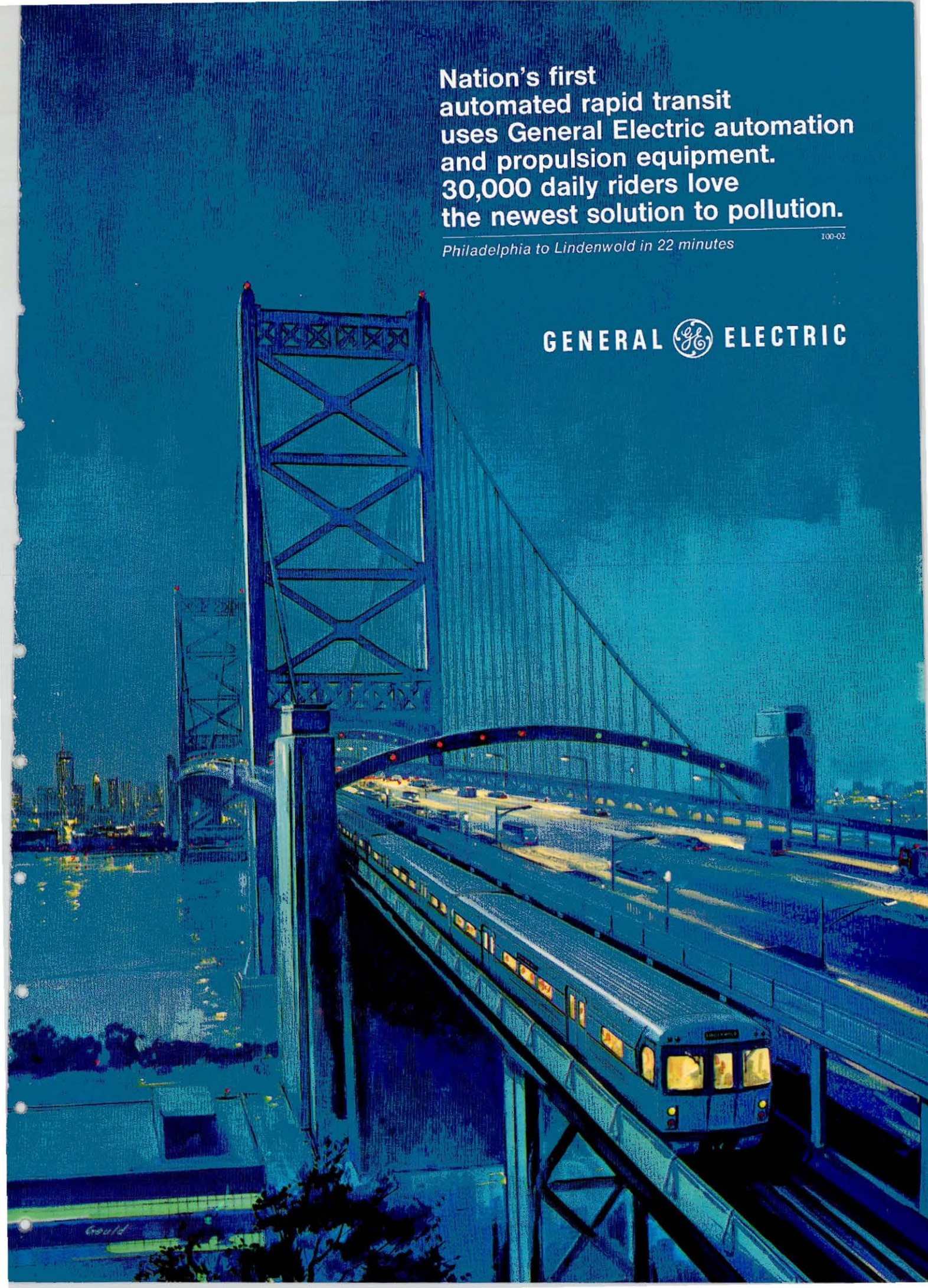
ICC has postponed from June 1 until Sept. 1 the effective date of incentive per-diem charges at the request of House Interstate Committee Chairman Staggers (D.-W. Va.), whose committee is considering related legislation. The proposed new charges ranging from a low of 4 cents a day to a high of $12.98 a day are the commission's solution to the chronic September-March boxcar shortage.

AIR MAIL SERVICE REDUCED

To cut costs, the Post Office Department has told its offices to reduce the amount of first-class mail shipped by air. About one-third of first-class mail now travels by air. Henceforth, says the Post Office, such mail traveling less than 750 miles will move by surface transportation. Generally, trains will carry mail approaching the 750-mile limit, while trucks will handle shorter distances. The switch will divert some 63 million ton-miles of mail to surface modes.

COURT REFUSES TO DELAY PRODUCE RATES

A Federal district court in Washington refused to issue a restraining order blocking increased rates for shipments of fruits and vegetables from the West Coast to Eastern markets. The restraining order was requested by the Justice Department, which contended that the ICC should not have permitted the higher rates to go into effect. A consumer group has challenged the rates, claiming that they would add $8 million to Eastern shoppers' grocery bills. The court agreed to receive briefs during the next two months.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RAILWAY AGE NEWS

Rails disappointed by 5% rate increase

Railroads this week were preparing to file new tariffs, after the ICC's approval May 27 of an interim 5% general increase in freight rates. The boost, to take effect on 10 days notice, will yield carriers an estimated $500 million annually.

Rails had asked in March for a 6% general boost. The ICC said it would continue to investigate the request, warning that if it found illegal or excessive rates, it would order refunds of the interim 5% increase.

The Commission's temporary approval came on an 8-0 vote, with two commissioners abstaining. The 11th ICC seat is vacant.

In addition, the ICC ordered restrictions placed on the increase for some commodities, which would limit those increases to less than 5%. The restrictions include a 4% limit on the increase for trans-continental piggyback shipments of fresh fruits and vegetables, and limits of 18 cents a ton for coal and coke products.

Other restrictions were a 3% limit for flyash; and limits of 24 cents a ton for iron ore, 9 cents a ton for lignite, 24 cents a ton for pig iron or iron and steel scrap, 15 cents a ton for furnace limestone, and 4 cents a 100 pounds for sugar.

Rail reaction to the temporary 5% hike was mixed. In general, industry officials expressed disappointment that the full 6% increase was not approved but encouraged that additional revenues will start flowing into carrier account books.

Eastern and Western roads, joined later by Southern lines, applied in early March for the 6% increase, arguing that they were faced with an acute financial problem, which could be ameliorated only by an immediate increase in revenues. A 6% increase would have brought rails about $650 million in new income.

The first-quarter earnings report of the railroad industry was used to buttress the case. Class I railroads reported a $2 million net deficit in ordinary (net) income for the first three months of 1970.

Southern forms hazardous-duty team

When an accident involving hazardous materials occurs on the Southern, a team of specialists will be ready to deal with the emergency.

Southern has formed the team to respond to emergencies involving hazardous materials anywhere on the road's 10,200 miles of line. The team will work at the accident scene with shippers' specialists who may be called in to provide technical expertise on the materials. The team, with some of its equipment, is pictured above.

Members of the team also will train officers on each division of the Southern in procedures for identifying and dealing with hazardous materials.

When an accident occurs within 150 miles of Atlanta, the team and a specially equipped mobile trailer will be transported to the scene by rail or highway. Beyond 150 miles, the team will be flown to the scene by a charter air service.

The team is led by J. J. O'Driscoll, superintendent-safety planning. The other members are C. S. Burnham, general superintendent-safety for eastern lines, and E. D. Miller, general superintendent-safety for western lines.

Time runs out for running boards

Roof running boards may be left off cabooses with platforms built after June 1, the Federal Railroad Administration has ruled. At the same time, the FRA order stipulates, all ladders, roof handholds and cupola handholds must be eliminated, too. Furthermore, notices prohibiting walking on the roof of these cabooses must be posted inside, and safe means must be provided for window maintenance. Running boards on existing platformed cabooses may also be removed, the ruling states, as long as all the conditions for new units are met. Running boards are coming off box cars over an 8-year period.

NEWS

FIRST BULK SHIPMENT is loaded into ACF Conditionaire car by technician Paul Bloomstrand.

AS POTATO RACE begins, spuds get a final inspection by two farmers and a horticulture professor.

ACF helps Idaho get its potatoes to market

Idaho potatoes are being shipped in bulk for the first time in the state's history, thanks in part to ACF's Conditionaire car.

Until March, Idaho packers were required by law to ship potatoes in bags. But the state—which leads the nation in potato production—had been feeling the results of bulk shipments by other states. Bulk shipments reduce distribution costs, and several states had been taking advantage of the cost savings, registering substantial gains in potato production. While Idaho was increasing production 56%, from 43 million cwt. in 1958 to 67 million cwt. in 1969, Washington's production was rising 190%, from 10 million cwt. to 29 million cwt. during the same period.

The increased competition and the availability of ACF's Center-Flow covered hopper with interior environment control are being given credit for passage of a bill which permits Idaho packers to ship in bulk.

ACF says that one of its Conditionaire cars can carry 180,000 pounds of potatoes, while an ice-cooled box car can carry only 50,000 pounds of bagged potatoes.

Opponents of bulk shipments had contended that the quality of potatoes on arrival at destinations was inferior to the quality of potatoes shipped in bags; and that Idaho potatoes would lose their identity if they were not shipped in labeled bags.

Proponents of bulk shipments argued that new rail equipment such as ACF's Conditionaire delivered potatoes which compared favorably in quality with potatoes shipped in bags; and that the identity of Idaho potatoes could be retained in the re-packaging process.

But the argument which carried the most force was the increased potato production from other states utilizing bulk shipments.

ACF says that since its cars went into service in January 1969, they have been used to transport more than 6,300 tons of potatoes from Arizona, California, Colorado, Maine, Nebraska, North Dakota, Minnesota and Washington. The tonnage shipped in bulk is expected to increase sharply this year, ACF says, pointing to the purchase of 51 Conditionaires by Burlington Northern for delivery in the first half of 1970.

DOT lets contract for research facility

DOT has taken the first step towards establishing a railroad research laboratory for government and industry use—a $1 million contract for the design of a wheel-rail dynamics research facility near Pueblo, Colo.

The finished lab, says DOT, will be analogous "to the wind tunnels of the aircraft industry or the static firing test pads used by the aerospace industry."

Hailing the project, FRA Administrator Reginald Whitman pointed out that very little fundamental data exists on the physical phenomena involved in rolling support and wheel-rail contact at high speeds.

"Provision of a specialized research lab, equipped with suitable apparatus and instrumentation and capable of simulating actual operation under controlled conditions, is potentially the most productive, safe, economical approach to investigation of these phenomena," said Whitman.

The design contract was awarded to Wyle Laboratories, Huntsville, Ala. Actual construction of the lab will begin next year, under a separate contract. The facility, at the earliest, will open in 1973.

"Hot freight" parley planned

More than 500 "hot freight" specialists from around the world are expected to attend the third International Symposium on the Packaging and Transportation of Radioactive Materials at Richland, Wash., Aug. 16-20.

Sponsors are the U.S. Atomic Energy Commission, through its Richland Operations Office, and operating contractors at AEC's Hanford plant—Atlantic Richfield Hanford Co., Battelle-Northwest Division of Battelle Memorial Institute, Douglas United Nuclear, Inc., ITT/Federal Support Services, J.A. Jones, Vitro Engineering, and WADCO/Westinghouse Electric Corp.

Purpose of the symposium is to "update the technology and apprise participants of current research in the area of packaging and transportation."

ACI labeling deadline extended to Jan. 1, 1971

All equipment in interchange service on the railroads must be equipped with automatic car identification labels by Jan. 1, 1971, according to an announcement by W. H. Chidley, executive vice chairman, Mechanical Division, AAR, extending the deadline from June 1, 1970.

Estimates are that railroads have spent about $17 million labeling cars, locomotives, trailers, containers and work equipment. A sampling of opinion at a recent Data System Division forum in Denver indicated that the Jan. 1, 1971, deadline will be met. "There is too much at stake not to meet it," was a typical comment. Reports from several railroads having test installations of ACI indicated an over-all accuracy of 95% or greater. Missouri Pacific is currently conducting a fourth round of ACI tests at its Dupo, Ill., yard. The yard is bracketed by five scanners with Teletype output into the yard office. A test sample of 2,055 cars indicates 82.14% of the cars passing the scanners have valid labels, and correct output data has been obtained on 96.8% of those labels.

Estimates are that 75% to 80% of the car fleet is now equipped with ACI labels. Some railroads are close to completion. However, there was concern shown at the DSD meeting about the accuracy of label application. Indications are that about 3% of the labels are incorrectly applied. Misreading has been caused by labels being placed too low on flat cars or on curved sides of tank or covered hopper cars. Revised instructions now provide for placing of ACI labels "entirely between 6 feet and 9 feet, 6 inches above top of rail, whenever possible."

Piggyback labeling

To make it easier to label trailers and TOFC/COFC flat cars, DSD's Ad Hoc committee on ACI has recommended that TOFC equipment codes 2 and 3 be placed in the piggyback formatted option, along with containers. Present requirements are that there must be a 6-foot horizontal spacing between labels on trailers and the car carrying the trailers. The basic ACI system, with the 6-foot label spacing, can read trailers on flat cars. However, with the recommended change, the basic ACI system would only read labels on cars.

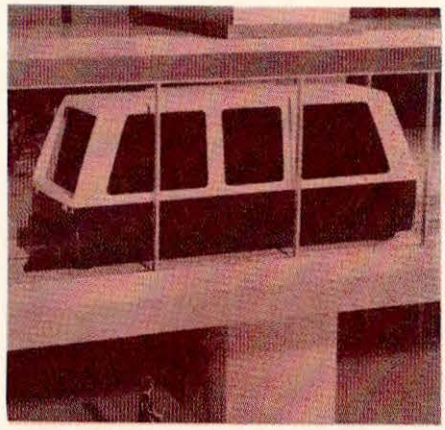
Reasons for the change, says the Ad Hoc committee report, are to eliminate labeling restrictions on trailers and flats (no 6-foot horizontal separation between labels required). It has been noted that prescribed labeling areas often fall directly in the path of piggyback crane arms, resulting in serious label damage.

Also, container labels have always been in the formatted option. A survey of railroads indicated that where trailer data is required, container data would be required and vice-versa. Also, some containers are moved as trailers with the bogies. If this recommendation is accepted by the DSD and Mechanical Division general committees, it should speed up labeling of trailers and containers. Also, it will allow the placement of labels in a more readable location on low-level flat cars.

Pomona to get transit test line

An automatic transit system for the new Dallas-Ft. Worth regional airport at Arlington, Tex., will be tested in the Los Angeles area this year by the Dashaveyor Company of that city under a grant from the U.S. Department of Transportation and the Dallas-Ft. Worth regional airport board. The actual installation will be at the L.A. County Pomona fair grounds and include a life-size test guideway about 1,200 ft. long with connecting spur and passenger station to facilitate rapid transit between the fair grounds with its spacious parking facilities and downtown Pomona. Two passenger vehicles with combined seating and standing capacity of 30 each will be placed in operation over the system under simulated airport conditions.

The tests, carried out under the supervision of the Battelle Memorial Institute, Columbus, Ohio, will cost more than $560,000 and are designed to permit evaluation of the Dashaveyor as an airport rapid transit system. The test vehicles will be operated under automatic control and are planned to demonstrate vehicle safety, acceleration, deceleration, jerk rates, controlled stopping, loading and unloading of passengers (including vehicle door operation), and service and emergency braking.



DASHAVEYOR car will seat and stand 30.

The Dashaveyor system, originally developed to carry ore and mine personnel in rugged service, has been adapted to carrying people, cargo and solid waste. It is fully automatic; powered by electricity; locked in a guideway of dual rails; relatively silent and smog free; protected by electronic watchdog control and capable of running on, over or under any surface. It is said to be the only transit system which can be operated horizontally like a train, vertically like an elevator or at virtually any angle of descent or climb like a conveyor belt. A 5.5-mile mining version is already in operation after extensive testing at the Copper Range Company's mine near the town of White Pine, Mich.

NEWS

MLW locomotives set sail for Pakistan

Four 120-ton, 2,000-hp diesel-electric locomotives destined for the Pakistan Eastern Railway were recently loaded in Montreal harbor by the floating crane "Hercules" (above). They are part of a $10-million for 40 units placed with MLW Industries, a division of MLW-Worthington Limited.

Government car fleet proposed in Senate

Another proposal for a federally owned box car pool has surfaced in Washington, this time in the Senate.

Hard on the heels of FRA's flirtation (RA, May 25, p. 106) came substantial support for the idea from Sen. James B. Pearson (R-Kans.) who introduced a bill on May 22 to appropriate $120 million for the construction and purchase of at least 10,000 freight cars by the Department of Defense, thereby freeing railroad-owned cars.

Besides Pearson, the bill has eight sponsors, including Sen. Warren Magnuson (D-Wash.), chairman of the Senate Commerce Committee, and all members of the Special Senate Subcommittee on Freight Car Shortages. While chances for passage of the bill are remote this session, its introduction does reflect growing awareness in Washington that railroad freight problems are equally as important as passenger-train service.

Pearson said the economic loss to his state, Kansas, caused by an inadequate box car supply, totaled $100 million a year. He also noted that demurrage fines paid in 1968 by DOD cost taxpayers "tens of millions of dollars."

The bill contains a clause enabling DOD to enter into agreements with rails to provide for maintenance of the freight cars and "rate adjustments in order to recognize the United States' capital investment in such cars."

DOT appoints area director

In a move to make Federal officials more accessible to state and local officials, Transportation Secretary John A. Volpe has named the first of 10 regional DOT representatives. Former Iowa Governor Norman A. Erbe will coordinate DOT activities in the states of Washington, Oregon, Idaho and Alaska, from an office in Seattle. The Secretary's representatives will oversee activities of DOT's operating administrations.

IRT adopts ecology theme for conference

"Urban Transit for a Better Environment" will be the theme June 17-19 of the annual conference of the Institute for Rapid Transit at the Waldorf Astoria Hotel in New York City.

Among the speakers at the IRT conference will be New York Gov. Nelson A. Rockefeller, New Jersey Gov. William T. Cahill and Secretary of Transportation John A. Volpe.

Tours of transit properties in the New York metropolitan area will be conducted June 17 by the Metropolitan Transportation Authority, the New York City Transit Authority and the Port Authority Trans-Hudson Corp. (PATH).

Conference programs will begin June 18. Members and directors of the IRT will hold annual meetings on June 17 prior to the public sessions.

Special rail service may fight poverty

Four isolated coal mining counties in southern West Virginia may someday be served by a unique "antipoverty" railway.

The four counties—McDowell, Mercer, Mingo and Wyoming, whose population totals over 200,000—are either inaccessible to other modes or other transportation is not feasible. An estimated 90% of the counties' residents have never visited a physician, dentist or lawyer in their lives.

Rep. James Kee (D-W. Va.) has worked with Federal agencies, notably the Office of Economic Opportunity, to see what could be done to bring mobile medical and social services into the area, but it was the FRA who brought life to the program last month by obtaining the requisite equipment—four Army surplus ambulance rail cars, now located at the Mechanicsburg, Pa., Army Depot.

The cars would be attached to freight or passenger trains traveling through the region on regular runs and then detached on local spurs in the area for periods of five to 10 days at each location.

How a $40-million customer measures railroad performance

Railroad freight service is below a level that is acceptable to General Mills, according to A. Pearson, the firm's general transportation manager of corporate services.

The remark was made to the Marketing Section at the 61st annual meeting of the American Railway Development Association, in Cherry Hill, N.J.

General Mills' concern about the quality of rail service, he told his audience, is based upon the fact that 95% of the company's food products moves in rail transportation—for which General Mills pays annual freight charges exceeding $40 million.

Railroads are an integral part of General Mills' marketing program, Pearson said. "The quality of freight service performance is a very important segment of our marketing program and contributes directly to the profitability of our company and its suppliers."

The key factor in freight service, Pearson said, is dependable in-transit time from consignor's dock to availability for unloading by the consignee.

"Carloads of our products," he continued, "are intended by General Mills and its customers to arrive at our customer's siding within plus or minus 24 hours of a specific date. This date is determined when the customer places the order. It reflects standard in-transit time from our dock to his dock."

General Mills measures railroad in-transit performance by comparing actual movement of box cars with the scheduled or standard transit time. Pearson said the scheduled time is based on actual experience and is not a railroad published schedule.

General Mills' scheduled arrival day, plus or minus 24 hours, sets up a three-day target. "Our objective is to hit that target 90% of the time. For the month of April 1970 we hit the target only 58% of the time. Cumulatively, June 1969 through April 1970, we have hit the target only 53%. Even though thousands of dollars have been spent to improve service, we have not made progress."

Any freight-service measurement system must become part of the warp and woof of railroad managerial consciousness, William Bamert told the ARDA Marketing Section. Bamert is assistant vice president, administrative planning, Merchandise Freight Group, of the Chesapeake & Ohio/Baltimore & Ohio.

To accomplish that, Bamert said, will take nothing less than a managerial revolution in the railroad industry. The beginning of such a revolution, he added, will come when management outlook is focused on what is basically important to the railroads' future as a competitive transportation enterprise.

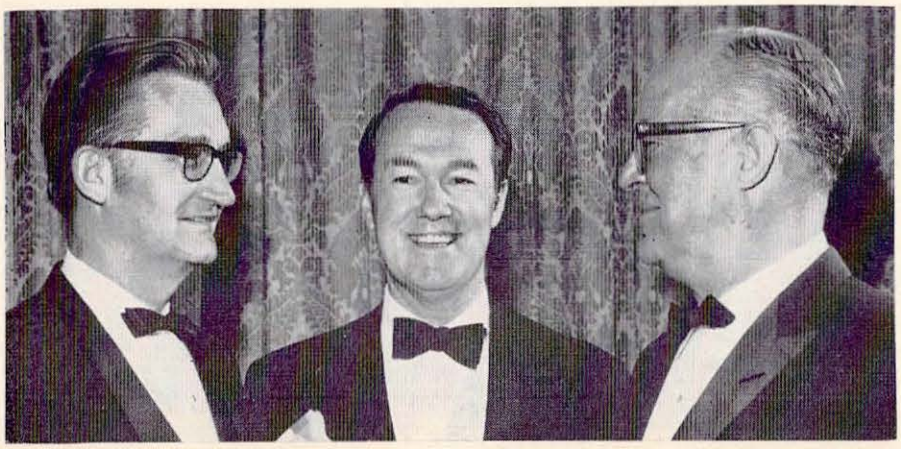
"In recent years the industry's profits have gone from unsatisfactory to more unsatisfactory," Bamert said. "Prospects for substantially increased net income will depend upon equally substantial increases in freight traffic volume—not just upon cost reductions. Such increases in volume, and in the rail's share of the transportation market will not materialize without significantly improved levels of rail freight service."

To improve rail service will be "hard as hell, but not impossible," Bamert stressed.

"The first and overriding problem in the managerial revolution is the absolute necessity for railroads to increase their share of the transportation market," Bamert continued. "We can no longer confine our industry's competitive cutting edge to price competition as our principal, and sometimes only, solution to the challenge of increasing our revenues by more than just a little bit. It will take an improved level of freight service.

"In the business world, revolutions are usually bred by top management conviction. By top management I mean the president, the marketing vice president, the operating vice president, the financial vice president and anybody else who really controls the destinies of the railroad. And top management conviction should be that substantially increased and profitable volume is a necessity for railroad economic survival. And beyond that, there must be a conviction that substantially increased volume can come about only by upgrading the traditionally accepted standards of rail freight service."

New officers of the Development Association were elected at the meeting. They are: President—N. A. Kirchoff, director of industrial development, St. Louis-San Francisco; first vice president—Paul Blanchet, assistant vice president, research and development, Canadian National; second vice president—Kenneth L. Cook, Director, Agricultural Development Department, Burlington Northern; and secretary-treasurer—I. J. Warren, assistant to vice president, Industrial Development Departments, C&O/B&O.



Union Pacific wins p.r. trophy

Union Pacific Chairman Frank E. Barnett (right) accepts Public Relations Society of America's Silver Anvil Award from PRSA's Donald B. McCammon while UP's general director of public relations Edwin C. Schafer (left) looks on. UP's public relations achievement in promoting the 1969 Golden Spike Centennial was judged best in the nation in the category of business-community relations.

NEWS

Lines on Labor

GUS WELTY

CREATIVITY: THE NAME IS "JOBS"

Illinois Central and the United Transportation Union may be ready to strike a blow for creativity in rail-management/labor relations. IC and UTU are calling a joint press conference for June 11—in Washington—and you don't have to be a certified oracle or prophet to have a pretty good idea as to what's up. Anybody who has watched the interplay between IC and UTU over the past couple of years can come to only one conclusion: Railroad and union are set to announce that the long-awaited agreement on a JOBS Commission is being signed.

CAN MANAGEMENT AND LABOR WORK TOGETHER? LET'S SEE

JOBS stands for Joint Opportunity for Better Service. And that is precisely what the commission idea is all about—better service which will produce a healtheir situation for both the railroad and its employees, through management/union cooperation. The basic premise, of course, is nothing new. Railroad men, in speeches up and down the land, have been saying the same thing for years: More business equals more jobs. The difference is that IC and UTU have been trying to turn the rhetoric into reality. On June 11, we may all know the extent of their success.

MUCH HAS BEEN DONE—AND MUCH REMAINS TO BE DONE

Only those close to IC and UTU know the kind of agony, the kind of soul-searching, that has gone into this project. Change, they say, is the name of the game. But change does not come easily to men whose careers have been wrapped up in traditional management/labor relations. And if there is one field where the play-it-safe-and-don't-gamble philosophy has seemed dominant, it's this management/labor field. In JOBS Commission bargaining, however, IC and UTU have been gambling—perhaps because each side grew in its awareness that the potential benefits did, indeed, outweigh the risks. From start virtually to finish, talks were on . . . and off . . . and on . . . and so forth. Even when the magnitude of the idea was grasped, there was reluctance—which can only be described as normal. Now, let's assume that June 11 really will bring the JOBS Commission into being. It detracts not at all from the importance of the occasion to point out that the big job is still ahead—the job of making JOBS work. But, for two years and more—through some pretty harrowing experiences—IC and UTU have worked, with sincerity, to try to prove that the manager and the employee are allies, not enemies, where the future of the railroad is concerned. This week, by all that's hopeful, JOBS Commission. Check the television and the newspapers for the news—and the June 29 Railway Age for what it's all about.

Transportation gets $7 billion for '71

The House late last month passed and sent to the Senate a $7 billion appropriations package to run DOT, ICC and a host of related Federal transportation agencies in fiscal year 1971 which begins this July 1.

The total of $7,052,157,000 was up from the $6,672,349,000 Congress appropriated for fiscal 1970, but down $112,806,000 from President Nixon's proposed 1971 budget.

House approval came on a voice vote, which accepted with only one change (involving a minor Coast Guard appropriation) the budget as reported by the House Appropriations Committee.

An amendment which sought to delete $290 million from the bill for the Civil Supersonic Aircraft Development (SST) was rejected 107-86.

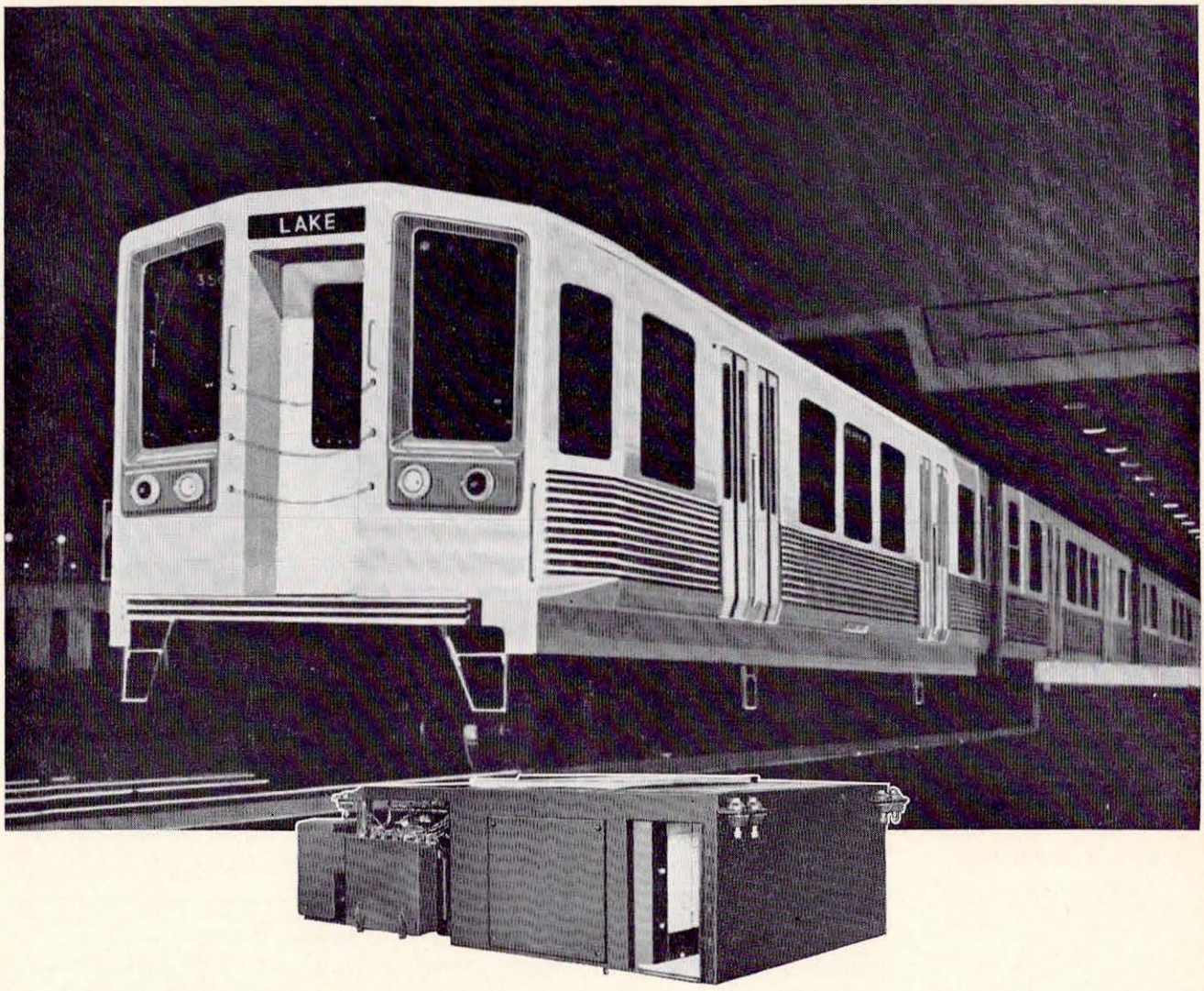
The bill authorizes $6,795,000 to run FRA, down from the $16,789,000 appropriated in fiscal 1970. The reduction stems from the House Appropriations Committee's decision to defer action on a $21,688,000 request for the high speed ground transportation research program. The Committee said it would consider this appropriation when legislation is enacted authorizing continuation of the program through fiscal 1971.

Despite some paring of FRA's 1971 budget estimates and save for the omission of funds for the high speed ground transportation program, FRA says it's happy with its budget. Particularly pleasing to FRA was the tripling of its funds for railroad research—$900,000 for fiscal 1971 up from $300,000 in 1970.

FRA will use the money to conduct research studies relating to railroad safety, rail-highway grade crossing safety and a wide range of policy questions involving railroad problems. FRA is considering studies relating to the creation of a government-owned freight-car fleet, consolidation and relocation of freight yards and the effects of a 50% increase in ton-miles predicted for rails by 1980.

The Administration lost its bid to trim the ICC's personnel in the coming year. The House Appropriations Committee restored 140 of the 182 positions eliminated by the Budget Bureau.

"Safety" air conditioning: the system of the 70's



The "Safety" 10-ton air-conditioning unit on these 150 CTA-Budd cars is a self-contained package system designed for undercar application. It consists of combined condenser-compressor and evaporator-blower sections mounted on a common support frame, insuring adequate and dependable air conditioning under all weather conditions.

"Safety" has a complete line of component and package-type air conditioners designed for special types of cars and conditions. We will be pleased to send you information on equipment to meet your needs.

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Circle 7 on coupon page 87

We've reached an agreement to put a stop to bearing parts replacement.

Under the Timken Company Parts Replacement Agreement you may never pay for parts replacement during the first seven years of operation. Because our agreement covers every bearing part—including seals. Even protects against brinelling, when no derailment damage is evident. Saves you inspection charges for parts replaced under specified conditions.

And it saves you these costs both on the Timken® "AP" bearings you'll be inspecting in the future—and on Timken "AP" bearings you're inspecting right now. Because our Agreement not only covers every "AP" bearing made today for 7 years ahead—but also covers every "AP" bearing made up to 7 years ago!

And why not? Our standards of design, manufacture and quality control were just as high then as they are now.

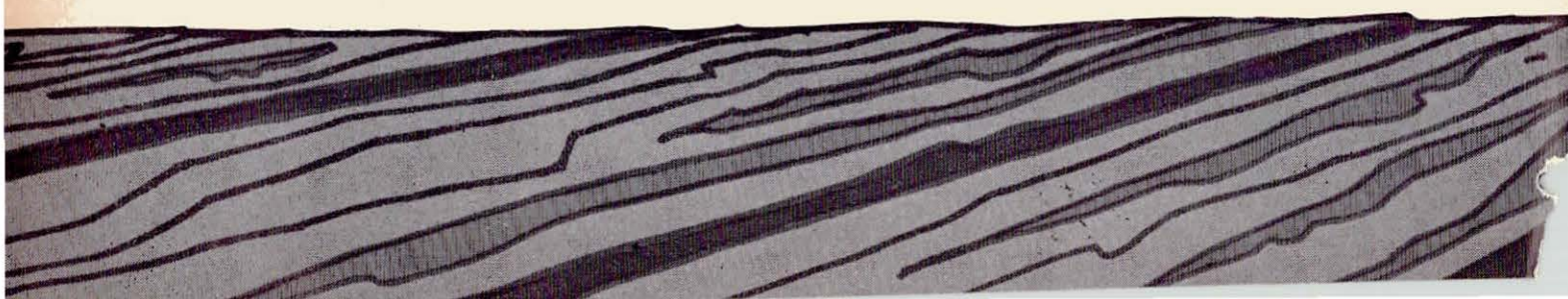
In short, we can promise the best protection and maintenance savings in the business on "AP" bearings, old or new. Because they're better bearings, old or new.

The Timken Company, Canton, Ohio 44706. Timken bearings sold in 133 countries. Manufacturing in Australia, Brazil, Canada, England, France, South Africa and the U.S.A.

TIMKEN®

REGISTERED TRADEMARK

TAPERED ROLLER BEARINGS



PARTS REPLACEMENT AGREEMENT

THIS AGREEMENT is between **THE TIMKEN ROLLER BEARING COMPANY** (hereinafter called the "Company") and _____ (hereinafter called the "Customer"), and is made effective _____ 19__

In consideration of the purchase by the Customer, on or after the effective date of this Agreement, of Timken® "AP" bearings, for use on railroad freight car applications, the Company hereby agrees as follows:

1. On any Timken "AP" bearing assembly purchased by the Customer during the term of this Agreement for use on freight car applications, the Company will replace or repair, free of charge other than any applicable inspection or service charge otherwise payable and Customer's portion of transportation, any of the parts specified in paragraph 3 below which, within 84 months of the original date of manufacture etched or stamped on the bearing, are found to be in such condition as to require replacement or repair to comply with the standards set forth in the Roller Bearing Manual of the Association of American Railroads as of January 1, 1969. If cup or cone surfaces show evidence of Brinell or fatigue due to normal wear or loading, to the extent that they are not suitable for continued service under standards set forth in the Roller Bearing Manual, the inspection charge otherwise payable will also be waived. If the Roller Bearing Manual should require, or the Customer should specify, that certain parts of the bearing assembly be replaced when the bearing is reassembled, even though such parts are in good condition, the Customer will be charged for the replacement of such parts.

2. The provisions of paragraph 1 above shall also apply, subject only to the 84 months' limitation, to any Timken "AP" bearings purchased by the Customer prior to the effective date of this Agreement.

3. To qualify for replacement of parts under this Agreement, the following requirements must be met, or the best of the knowledge and belief of the Customer and to the satisfaction of the Company:
   a. Any bearing requiring replacement must be serviceable to the quality of material and workmanship of the manufacture of the bearing, and must not be due to damage from derailment, fire, overheating or exposure to water.
   b. The complete bearing assembly (less axle and cap assembly) including all parts as removed from the axle for inspection must be forwarded to the Company, Fuller, Columbus, Ohio, fully assembled, and with suitable packaging and/or blocking to prevent damage in shipment and handling, within 84 months of the original date of manufacture, as stamped above, with identification of the 4 journals by its box where the bearing is being forwarded.
   c. The bearing assembly must have been in use on a freight car operated and maintained in accordance with the rules and standards of the Association of American Railroads for cars in interchange service.
   d. There must not have been any modifications or alterations of the bearing assembly, unless authorized in writing by the Company, nor any improper repairs or any substitution in the bearing assembly of bearing components made for another manufacturer.

4. Following inspection and repair or replacement of parts in accordance with this Agreement, the complete bearing assembly (less axle and cap assembly) will be returned by the Company to the Customer, Fuller, Columbus, Ohio, subject to such freight allowances as the Company may from time to time establish applicable to all customers of the same class.

5. The bearing parts which are covered by this Parts Replacement Agreement are the cones, cup, cone spacer, seals, oil seal wear rings, backing rings and seal fittings. Other parts of the bearing assembly – axle end cap, cap screws, locking plate and lubricator fitting – are covered by the warranty referred to in paragraph 6 below.

6. This Parts Replacement Agreement supplements the warranty set forth in the "Conditions of Acknowledgment and Acceptance of your Purchase Order," under which the bearings were originally sold by the Company to the Customer.

7. Except as provided in paragraph 10 above, this Parts Replacement Agreement will apply where the condition of parts requiring replacement or repair has been found by the Customer prior to the forwarding of the complete bearing assembly to the Company in accordance with paragraph 3b above.

8. In the event of any dispute concerning the qualification of a bearing for replacement of parts under this Agreement, the necessity for replacement or repair of particular parts, or any other question concerning the application of this Agreement, the decision of the Company will be final.

9. This Agreement is for a term of _____ months from and after the effective date, and may be extended for successive periods of twelve (12) months by notice in writing from the Company to the Customer. Following the termination by notice in writing from the Company to which this Agreement becomes applicable of this Agreement, any bearing assembly to which this Agreement became applicable during the term hereof, and which bearing assembly will continue to be eligible for replacement of parts in accordance with the provisions hereof.

IN WITNESS WHEREOF, the Company has executed and delivered this Agreement to the Customer as of the effective date specified above.

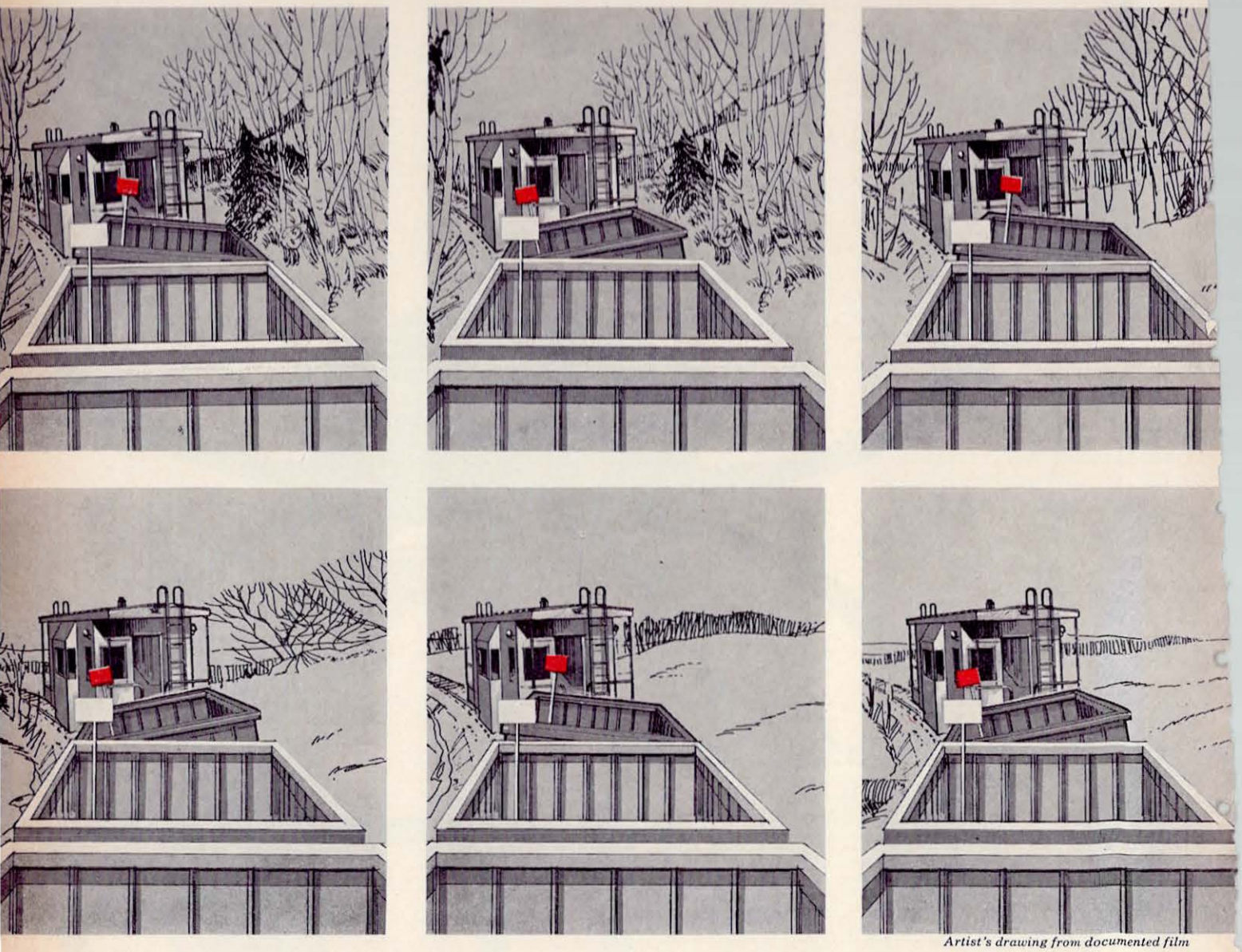
THE TIMKEN ROLLER BEARING COMPANY

By _____
District Manager, Railroad Division

APPROVED:

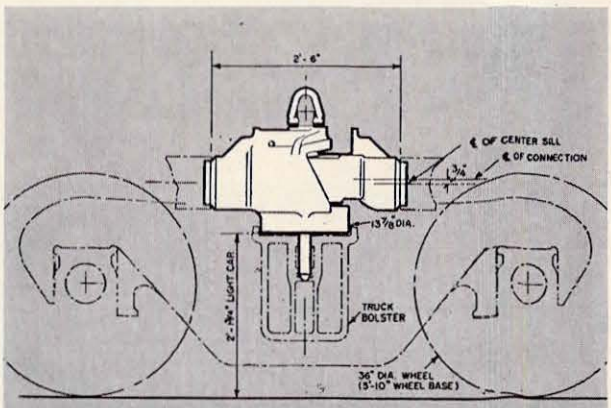
_____
General Manager – Sales or Assistant General Manager – Sales
Railroad Division
The Timken Roller Bearing Company

ARTICULATED CONNECTOR*



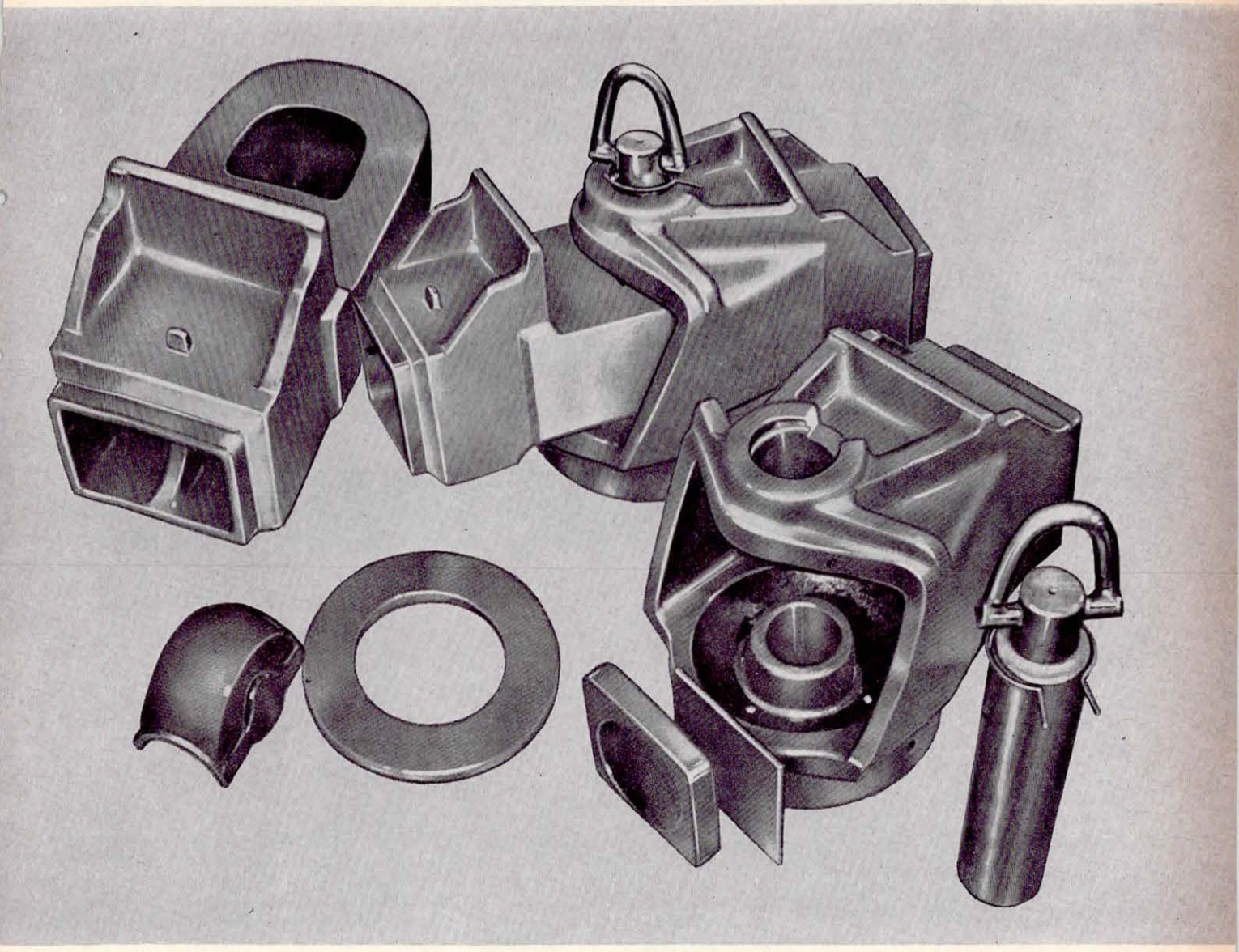
Artist's drawing from documented film

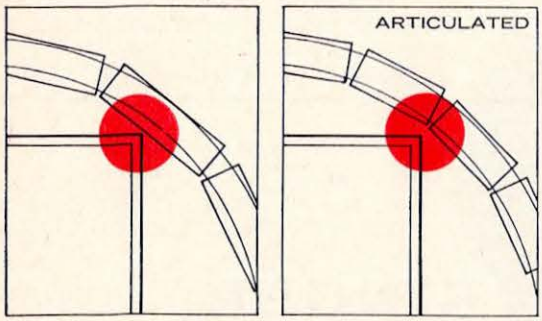
* The car with the red flag is a regular hopper car, shown rocking 9° to the left and right. The car with the white flag is stable. It is 7′ longer on the inside and can carry more payload. And why is this car so different? Because it's equipped with the ASF® ARTICULATED CONNECTOR, a new and revolutionary system of coupling that provides exciting car design flexibility. This complete system provides greater safety, maximum loads, less track and car maintenance, more efficiency. Over thirty years of experience is behind this project and it comes from the Stronger than Steel People—AMERICAN STEEL FOUNDRIES.



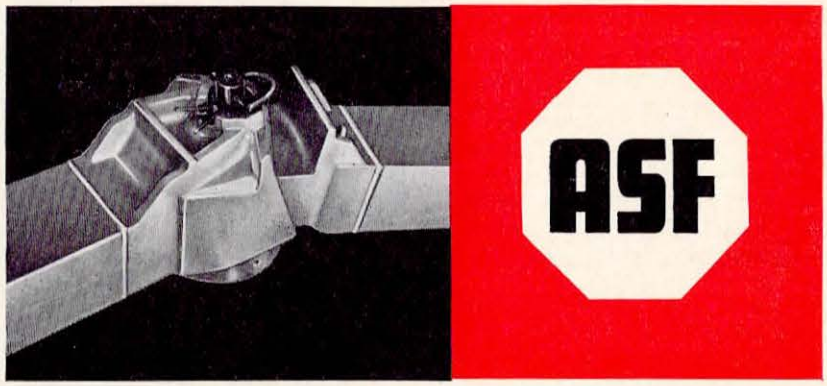
ARTICULATED CONNECTOR
(100 TON APPLICATION)

there's more to it than the name!





With the ASF ARTICULATED CONNECTOR sharper curves with wider loads can be negotiated, and coupler bypass problems are reduced.



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Your engineman training program is expensive, time-consuming, and inadequate.

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You spend tens of thousands of dollars and several years to train every engineman on your line. And human error still accounts for about 27% of all railroad accidents. You must be doing something wrong.

It is now possible to cut your training costs drastically, reduce training time to a few months, and turn out far better qualified enginemen.

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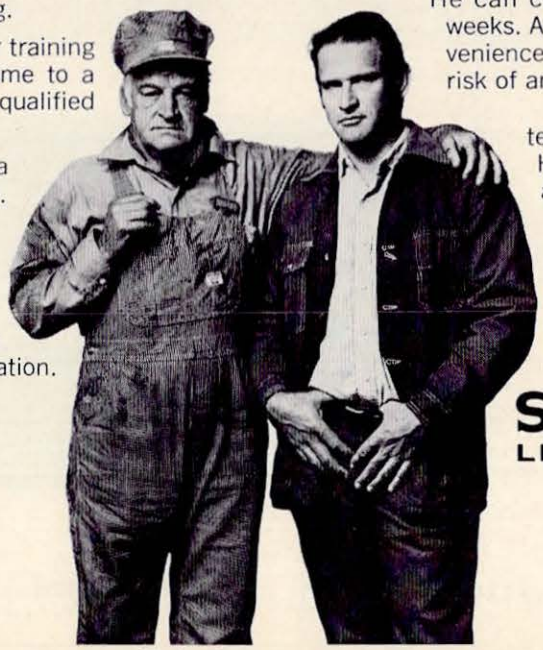
The Link Locomotive and Train Simulator creates an *absolutely* realistic training environment. The engineman trainee actually sees, hears, feels, and experiences everything he would in a real life situation.



With just one difference: in a Link Simulator the instructor controls the situation. He can program track conditions, tonnage, gradient, malfunctions. He can create conditions a trainee might otherwise never learn to handle. He can compress years of experience into weeks. All this without the expense and inconvenience of tying up your equipment. Without risk of any kind.

Link simulators are used extensively to train pilots and astronauts. Have been for a long time. Isn't it about time you brought *your* training program up to date?

For more information write Operational Training Systems Sales, Link Division, The Singer Company, 11800 Tech Road, Silver Spring, Maryland 20904.

SINGER
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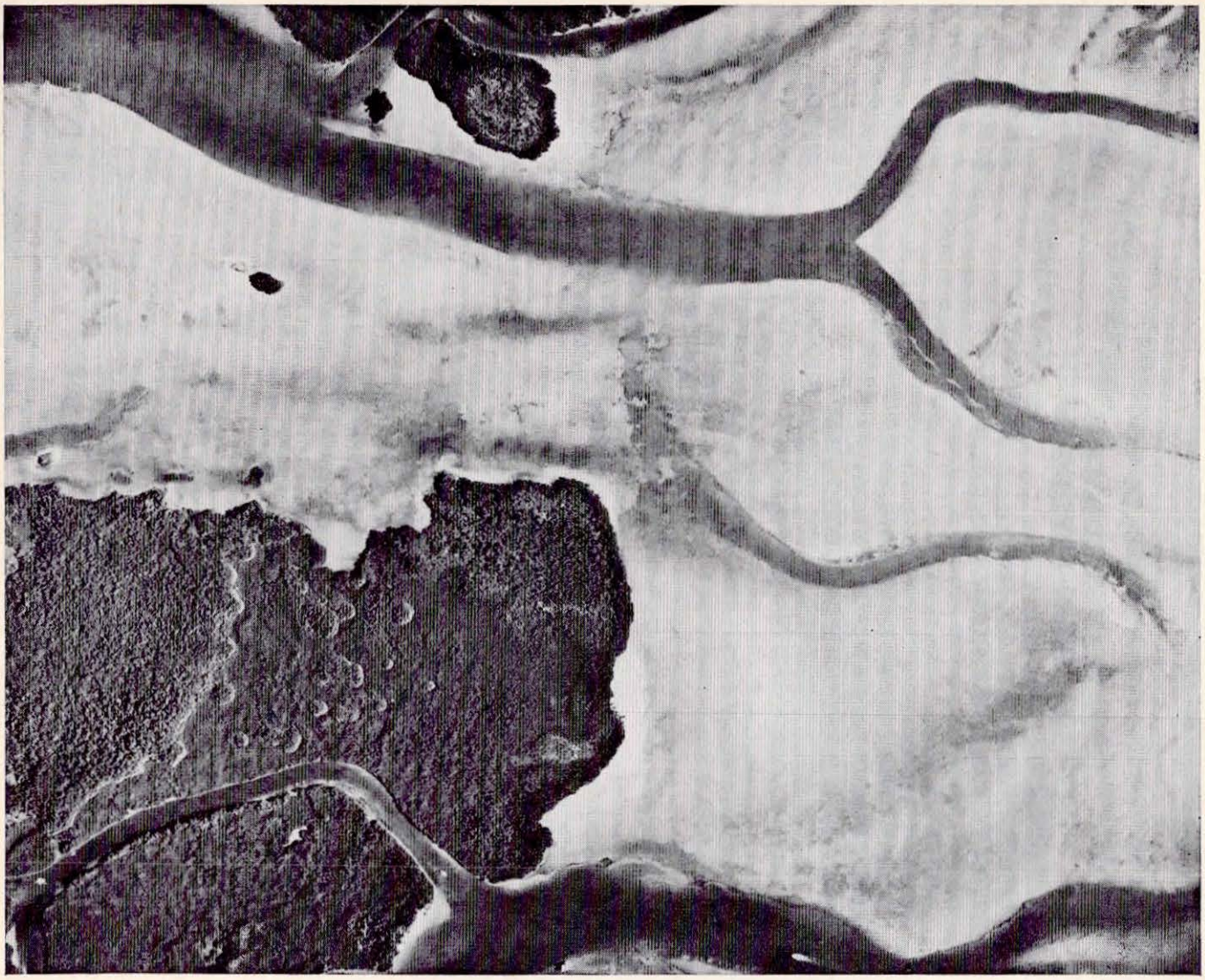
Circle 10 on coupon page 87



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Whatever your work is, if knowing the lay of the land can help, use the big picture—aerial photography. Simply apply photointerpretation to solving your problems. Here are some examples:

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Take the first step now to see how aerial photography can help you in your business. Send for your complimentary copy of *Photointerpretation and Its Uses.* This booklet was produced in part in stereo 3D to show you dramatically how aerial photography can be your first step to saving many steps. Send the coupon to Eastman Kodak Company, Dept. 412L, Rochester, N. Y. 14650.

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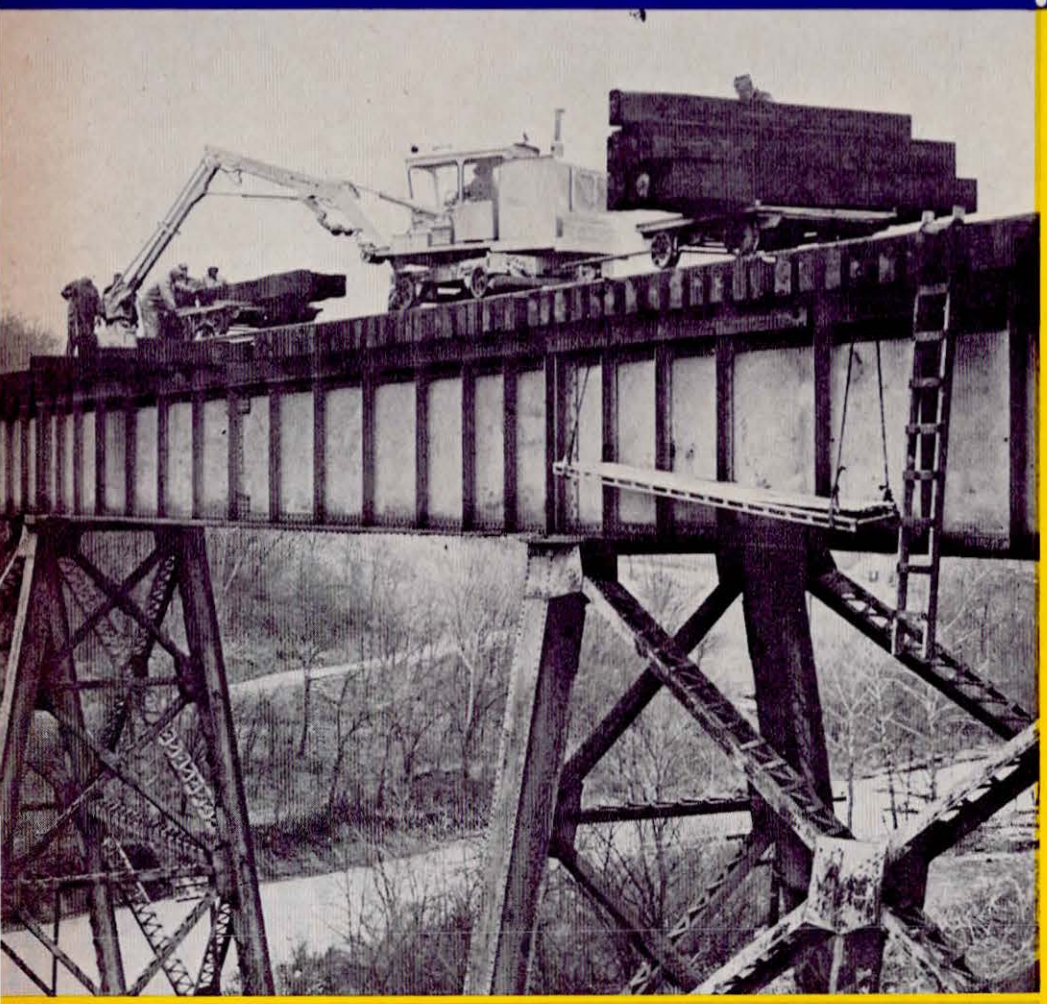
Kodak

the NEW KERSHAW BRIDGE CRANE



The Bridge Crane is designed to enable bridge forces to replace ties, caps, stringers and raising timber on open deck trestles rapidly and economically.

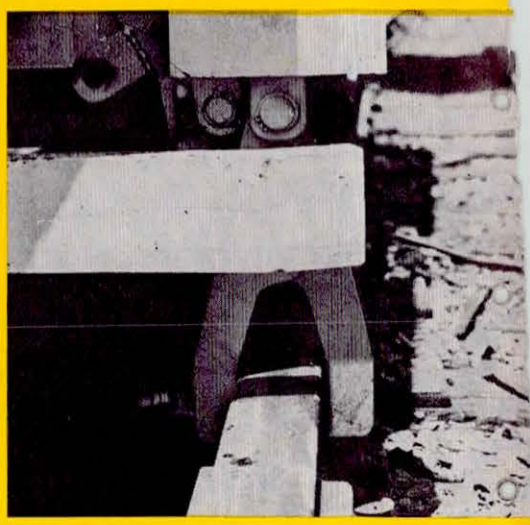
Very similar in appearance to our Tie Crane, the Bridge Crane was designed from the rails up for the heavy lifting jobs required for bridge work.

Hydraulic winch available to provide 4,000 pound lifting capacity at 10 feet from the center line of track.

Articulated boom with hydraulic grapple permits the operator to pick up a new tie by the end from the push car and insert it in place without resetting a clamp or hooks.

In the picture at the left new ties are on the push car behind the crane. Old ties are placed on the push car in front. The Bridge Crane removes old ties and installs new ones by clamping the ends of the ties.

Replacing raising timber.



Rail dogs.

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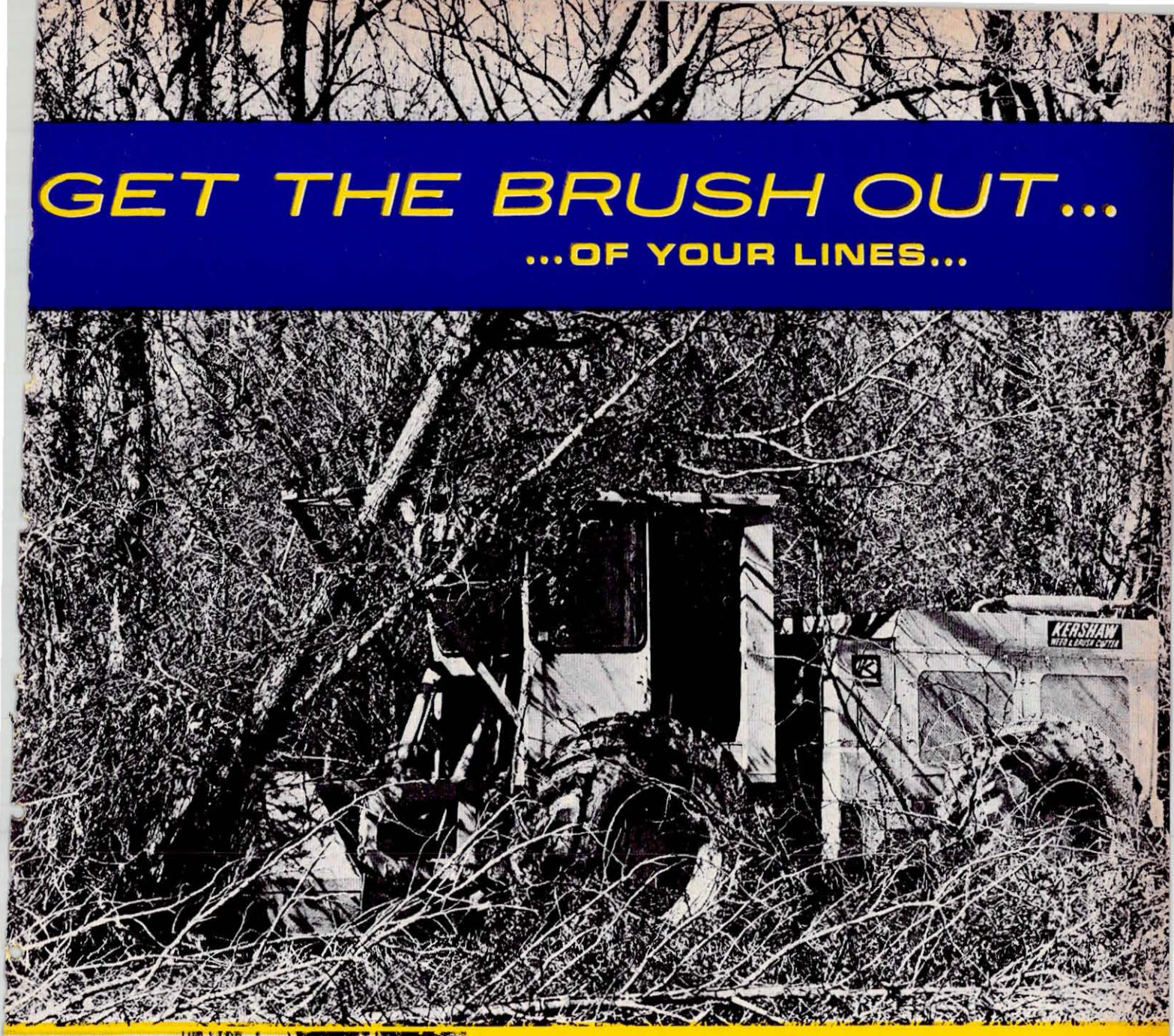

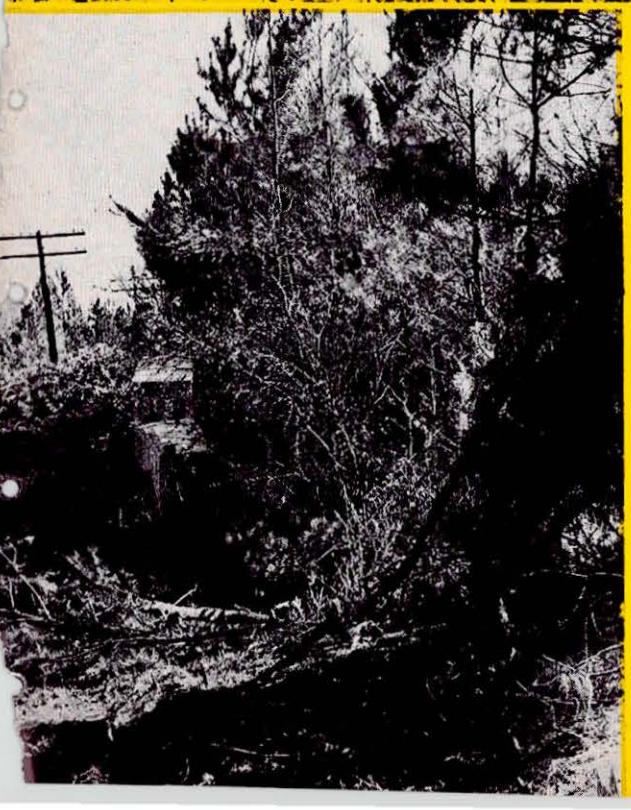

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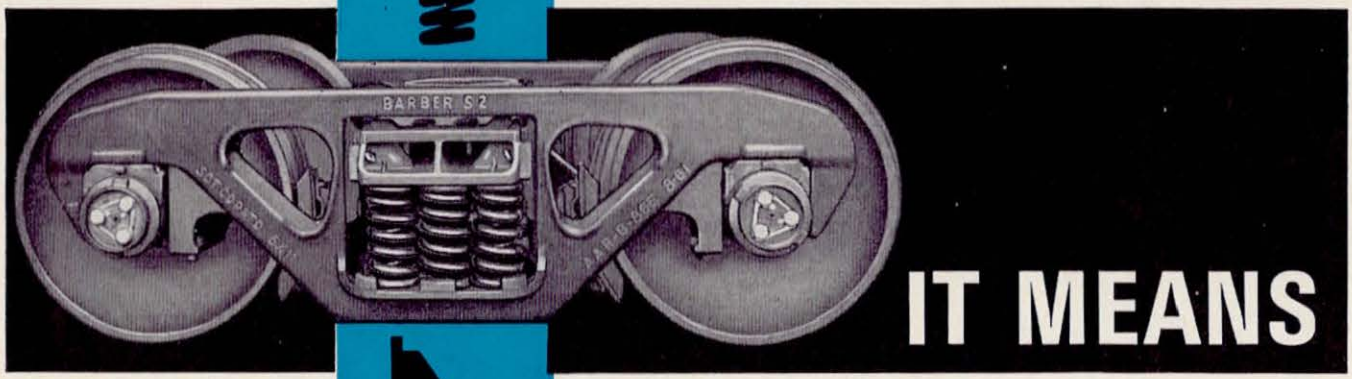

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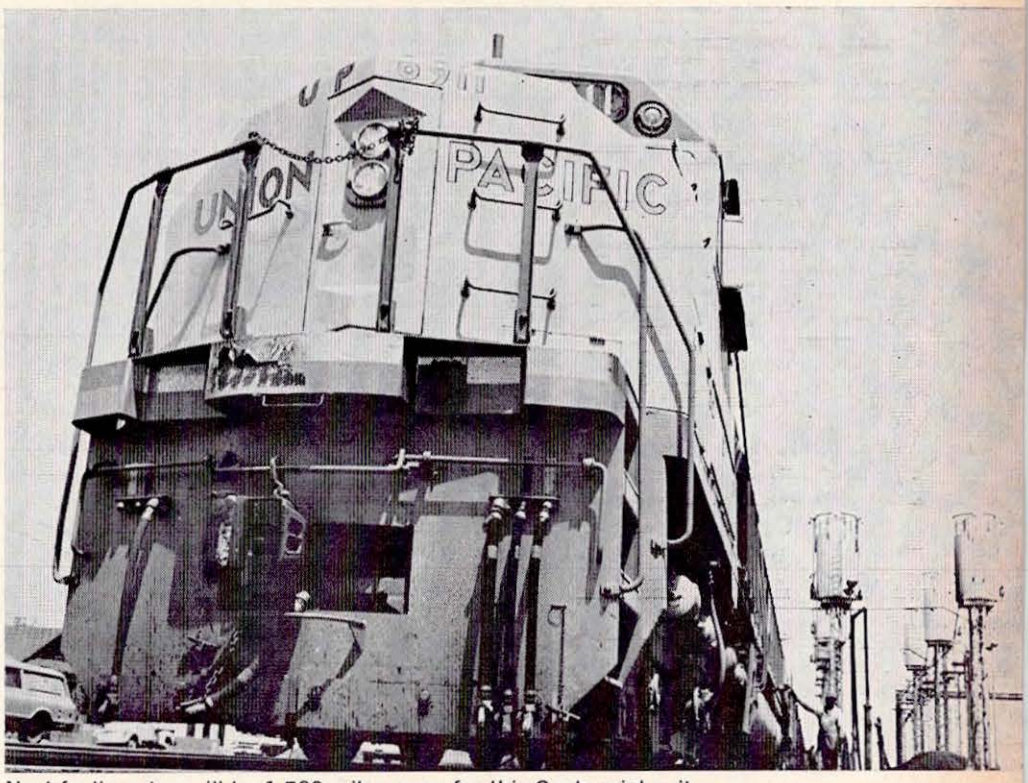
Circle 12 on coupon page 87

TOMORROW'S RAILROADS IN ACTION

Exploring three developments in the motive-power field that could have important overtones for the future.

Centennial locomotive: A powerful pace-setter

UP wants big freight units to operate 30,000 miles monthly.



Next fueling stop will be 1,500 miles away for this Centennial unit.

Union Pacific's powerful No. 6900 had a spectacular introduction last year. The first of 25 huge, 6,600-hp Centennial-class diesel-electric locomotive units ordered by the road appeared on the scene just in time to power the Golden Spike Centennial train on the last leg of its cross-country journey to Utah for the May 1969 celebration of the 100th anniversary of the formation of the first transcontinental railroad.

Today, a little over a year following its first public appearance, No. 6900 can boast of a number of additional —and equally spectacular—accomplishments. It and the other Centennial units in the UP motive power fleet are churning out some remarkable performances month after month hauling freight between the road's Bailey Yard at North Platte, Neb., and West Coast terminals, mostly Los Angeles.

● **Repeat order.** So satisfied is UP with the first-year performances of the twin engine units that it has ordered 22 more from the builder, Electro-Motive Division of General Motors. Delivery of the coveted repeat order for these units, which are officially designated Model DDA40X by the builder, starts this month. With each of its two engines rated at 3,300-hp, the DDA40X is the most powerful diesel-electric locomotive operating on U.S. railroads today.

The first group of Centennials has shown excellent stamina, UP reports. No. 6900, for example, was pressed into freight service immediately after its participation in the Golden Spike celebration. It turned in 220,000 miles of service in its first full year. This is about double the figure for other types of road freight units and about equal to the mileage a passenger train unit might accumulate in a year.

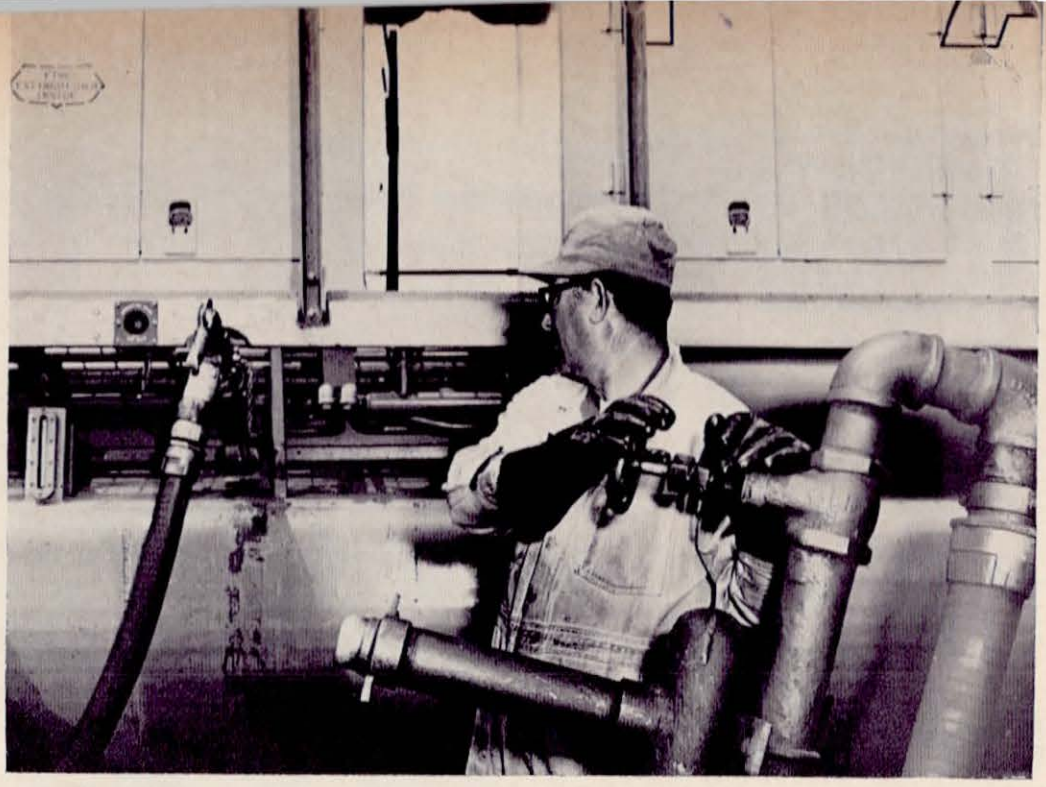
While satisfied with this mileage performance, UP still thinks there's room for improvement. "We think these units should be good for at least 30,000 miles a month," says Frank St. Lucas, supervisor of diesel engine maintenance. "Mechanically, they're capable of reaching that figure."

● **Minimum maintenance.** Not only are the mammoth UP units exhibiting an ability to rack up high monthly mileage records, but they're also staying out of the repair shops. For the most part, just normal maintenance is all that has been required so far for the entire fleet. One of the big reasons they are remaining out of the repair shops is that, early in the design stage, UP insisted upon having a number of special, low-maintenance features designed into them. As D. S. Neuhart, general superintendent of motive power and machinery, told locomotive maintenance officers at their annual meeting last year, the UP was seeking "to design the maintenance out of the Centennial units."

Here are some of the special features which are helping to keep maintenance to a minimum:

—Load checks of units can be made without the aid of a wayside load box. Tests can be made through a unit's own grids simply by flipping one switch. "It used to be that a load test might take two to three hours," recalls St. Lucas. "One workman can do it now in a matter of minutes."

—Traction motors are connected permanently in parallel, thus eliminating all motor transition. Series-parallel



MAXIMUM CAPACITY
Fuel tank, larger than some tank cars, holds 8,250 gallons. Diesel oil is today being consumed at a faster rate in some Centennial units as UP experiments with a 7000-hp output—an increase from their original 6600-hp rating.

connectors, field shunt contactors and related coils are not needed; therefore, potential problem sources are removed.

—Traction motors get extra protection from devices which reduce flashover damage by sensing any quick rise in current. Half of the first group of the large units were equipped with these protective devices. They have proved quite effective in high-speed tests.

—Use of a 59:18 gear ratio should effectively extend traction motor life, UP officers assert.

—Module-type electrical components have cut maintenance time considerably, St. Lucas says. "Instead of driving up to a unit with a truckload of components, a maintenance man merely has to carry a few circuit cards with him," he adds.

● **Other cost cutters.** There are many other new things on the units which are helping reduce maintenance costs and out-of-service time. For instance, a fuse was added in the cooling fan circuit that can save untold hours of labor and improve unit service. It's a small item, but it can pay off big in savings.

Battery cables and AC leads from the electrical panel were re-routed to reduce the chances of damage. Also, a system was installed to direct cool air on the bottom bearings of the cooling fans to help prevent early failure of the bearings. The bearings for each engine's two fans are close to the exhaust manifold and, therefore, need to be cooled.

Virtually all rotating equipment on the Centennials is electrically-operated. Only the air compressors are mechanically driven. This avoidance of mechanical drives is expected to help reduce maintenance and replacement costs, too. Another method used to save time is the unitizing of brake equipment. All components are mounted on one rack to permit quick servicing.

Another unusual feature selected to cut maintenance costs is a vastly improved annunciator system. It keeps a visual record of the activation of any warning or protective device while the unit is in service. This record can be examined later by inspectors at the terminals.

This protective device even has panel lights which light up to indicate that the test lights and buttons are malfunctioning.

● **A rolling laboratory.** Many new developments were put into the big 6,600-hp units to improve actual operating efficiency. Several units were equipped with new items which the builder and component suppliers wished to study under intensive service conditions. Some engines have piston rings made of stainless steel. Some have the standard chrome rings. Others have chrome on the top and bottom of the ring.

"The stainless steel rings look exceptionally good thus far for high-horsepower units," St. Lucas stated.

Raising the rating

Units are also equipped with rocker-type wrist pins which, says St. Lucas, may have a role to play when even-higher-horsepower units appear on the scene at some time in the future.

Three of the original 25 Centennial units are already rated at 7,000 hp and their performances are being watched carefully. UP officers are confident that even greater efficiency can be built into future units and that the day will surely come when 1,000-hp per axle will be commonplace.

Unique motor temperature simulators on the units increase tractive horsepower in the performance control range when motors are at normal temperatures. At the heart of this simulator is a thermal device that simulates motor temperature and delays power reduction until the real motor temperature calls for it.

● **1,500 miles per fueling.** One grade of fuel is being used year-round in the Centennial units. This is possible because of a special fuel heat exchanger mounted at the huge 8,230-gallon-capacity fuel tanks.

The size of the tanks, incidentally, allows the units to operate about 1,500 miles without refueling.

Some other innovations on the units:

—A jetliner-type electrically-heated windshield.

—Interior mounted hand brake equipped with safety interlocks to prevent unit loading while brakes are set.

—Automatic dump valves on the cooling system to prevent freezing of the engine and air compressor.

Several prototype components are being tested and studied on the units, too. "We're thinking way down the line," points out St. Lucas. "This first group of high-horsepowered units is really loaded with test and research projects. We think some of these test components may some day be standard items on all units."

The Centennial units are good ones on which to have components under test. Not only are they racking up high mileage each month, but they're also performing in high-tonnage trains and in consists with other types of locomotives. ■

Designated CF7, Santa Fe's conversion gives an entirely new look to the 2649, former twin of F7 unit at left.

Is rebuilding the answer?

Santa Fe looks at a home-grown approach for power for yards and branch lines.

Standing there side-by-side, the two Santa Fe diesel-electric locomotives seem to be generations apart, with very little in common other than ownership. Believe it or not, though, they are both 1,500-hp F7s, part of a fleet of 3,721 such freight units originally introduced over 20 years ago by EMD.

So, if they are both products of the same era and same manufacturer, why does 2649 seem to carry its age so much better? Furthermore, if they are both the same in name and model, why do they look so different? The answers lie in Cleburne, Tex., home of one of Santa Fe's major locomotive and car repair shops. It was in Cleburne that 2649 discovered recently what is the equivalent of the fountain of youth, and thereby had its lifetime extended by at least 15 years.

● **An "ugly duckling."** Just before its arrival at the Cleburne Shops last November, 2649, then one of the road's 200-series units, was pretty much of an ugly duckling. In fact, it looked as bad, if not worse, than 223, its mate in the photo. Inside, too, it was revealing its age. The 20 hard years of tough service all along the Santa Fe system had left their share of scars. "The unit wasn't exactly a 'basket case,' " recalls Henry N. Chastain, general manager-mechanical. "But, on the other hand, it wasn't in the greatest of condition, either."

Upon its entry into the Cleburne Shops, 2469 got an inordinate amount of attention, much more than is given a normal Santa Fe unit about to undergo shop work. Not only was Chastain keeping in very close touch with it and its movements over the next few weeks, but others—like John S. Reed, president, and Larry Cena, vice president-operations — were maintaining more than just a passing interest, too.

No. 2649 was able to capture all this attention because it represented Santa Fe's first recent attempt at completely rebuilding a diesel-electric locomotive. (The first was conversion of passenger booster 1A, one of the original 3,600-hp Super Chief units, into road switcher 2611 in 1949.)

From the outset of the recent project, Santa Fe management had determined that any measure of success with it could result in substantial savings for the railroad over the next several years. Also, from an operations standpoint, success could mean that the road would have a fresh source of motive power

in the 1,500-hp class, a power category ideally suited for yard switching and secondary-line operations, and one that was in high demand.

● **Expanded program ahead?** "This program, coupled with our acquisition this year of 120 new heavy-duty units ranging from 2,000 to 3,600 hp, will equip us to serve our shippers better on both main and secondary lines," Cena says. "The prototype has performed well in early tests, and if it and later units live up to our expectations the program will probably be expanded to include additional locomotives."

Thus, there were a lot of high hopes and a lot of important plans for the future riding on the locomotive when it rolled into the Cleburne Shops last November. Unfortunately, though, there really wasn't much else accompanying it.

● **Few guidelines.** The mechanical department had little to go on—no proven drawings, no hard and fast step-by-step plans for teardown and build-up, no time-saving production tips. Over the years, a few units involved in wrecks had been given heavy repairs. But completely rebuilding a unit was still another story. However, while actual experience was in somewhat short supply, enthusiasm wasn't. After all, if 2649 was a success, it might well be the prototype of many similar conversions in the future.

The project got under way in earnest, but at a cautious pace Altogether, it took the Cleburne Shops just about three months to strip the unit down to its underframe and then go through the painstaking process of totally rebuilding it to its present configuration. As planned in the very beginning, shop personnel moved cautiously, studying every move as the locomotive first dwindled to a mere skeleton and then reversed to take on a new shape and gain new energy.

● **No horsepower change.** It was determined right from the start that the unit's power would not be altered even one horsepower. On the other hand, there were no such restrictions so far as body styling was concerned. Rather than restore the body to the original F7 style, Santa Fe design engineers elected to go with something more closely resembling the GP body style. They gave it a new designation, too—CF7, with the C standing for "converted." Later, when the unit was making its initial test runs, the crews in the unit more-or-less confirmed the engineers' suspicions that the changed body styling would be greeted favorably.

"The crews said immediately that they liked the style a lot better than the old one," reports C. A. Moser, assistant superintendent-locomotives at Cleburne. "Improved visibility was especially well received."

Perhaps more than anything else, changing the body styling and beefing up the underframe were the two things which caused the most puzzlement for the Cleburne rebuilders. Since Santa Fe has rebuilt diesel engines and traction motors by the hundreds at its San Bernardino, Calif., shops as part of its heavy-repair program, this portion of the rebuild project was relatively routine. Likewise, truck rebuilding, another common practice for heavy repairs, was simple.

In converting the body styling, however, Cleburne personnel could not merely set a new cab and engine compartment on the underframe, and let it go at that. In its original design, the F7 body actually served as part of the unit's over-all supporting structure, a more-or-less semi-monocoque design. Therefore, in removing the body, a portion of the unit's strength was being sapped along with it.

Officers checked progress on 2649; from left are John S. Reed, president; Henry N. Chastain, general manager—mechanical Larry Cena, vice president—operations.

● **Strength problem solved.** Any deficiency in strength is certainly not evident in the rebuilt unit. The strength problem was solved in a unique manner. The solution came, not from Cleburne, but from the Santa Fe car shop in Topeka, Kans. Carbuilders at Topeka suggested that flat-car center sill sections be used to restore strength to the locomotive's underframe. Going one step further, the car shop actually built the sills and shipped them on to Cleburne.

Likening the rebuild project to one of constructing a new house, C. W. Cramer, superintendent of the Cleburne Shops, says the interior work for the unit required by far the most time. No startling changes were made in the control or braking systems, nor in any of the measuring devices on board.

The transition's teaser circuit was altered so it would more closely resemble the one in GP units. The heating system and the water-heating system were upgraded, the on-board toilet was moved to the fore part of the unit.

Outside the cab, the story was different. Numerous changes had to be made there, but they were not time-consuming. Walkways around the engine compartment had to be put in. The fuel tank and battery box had to be altered to fit beneath the flat car sills. Uncoupling rods had to be changed altogether. A recessed hand brake was installed at the long-hood end. Sturdier crash posts were welded in place at the front.

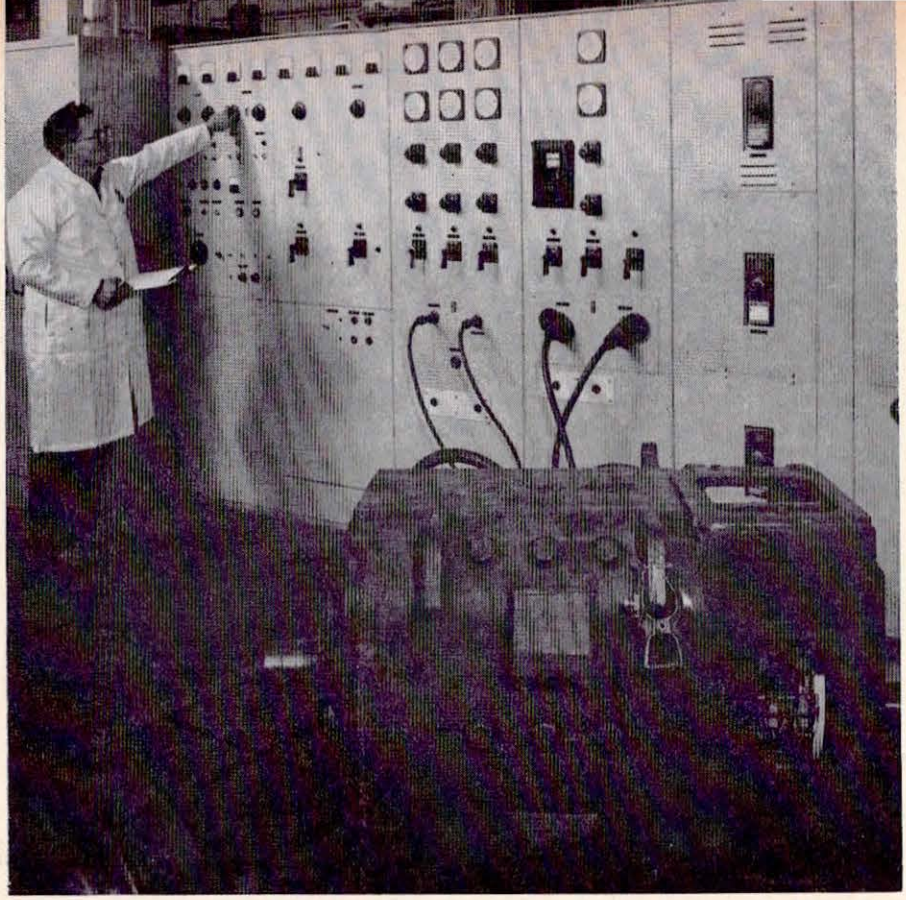
● **Tests went well.** Test runs with the like-new unit started in early March between Temple, Tex., and Dallas. So far, it has been performing almost beyond expectations, Chastain reports. On one test run, with Chastain on board, the engineman inadvertently brought the full-tonnage train to a full stop on a grade. "We were able to get under way again, although very slowly at first, and we made the grade without encountering any unusual problems," Chastain adds.

These early successes with the unit have been enough to encourage Santa Fe management to continue with the rebuild program, at least for the remainder of this year. Another six F7 units are on tap for rejuvenation at Cleburne. Three are being stripped. Altogether, Santa Fe has over 200 F7 units in its locomotive fleet which could eventually become candidates for rebuild. At present, though, only the six have been authorized for the program.

Although he now has the tough one—the first one—out of the way, Cramer isn't about to write off the six upcoming units as routine work. "Sure, the second one is going to be a lot easier than the first, and the next one will be still easier," he says. "But, still, you can never call rebuilding a simple and easy job."

● **The cost.** Since the first unit was rebuilt for the sole purpose of determining if, in fact, shop personnel and shop equipment were up to performing this type of work, Chastain is cautious in mentioning cost figures. He does say, however, that the rebuild of 2649 cost about $45,000 more than an average heavy-repair job. In all probability, units will be restored for between one-third and one-fourth the cost of a new unit of comparable horsepower.

With potential savings of that magnitude, little wonder that Santa Fe management has been keeping a watchful eye on development of No. 2649. ■

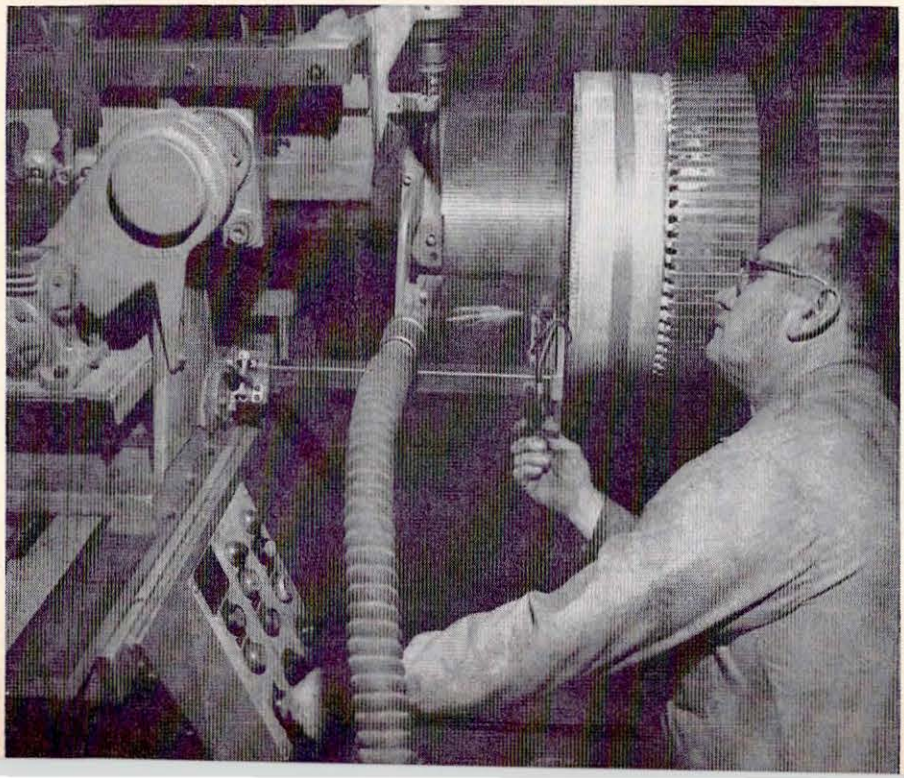


MOTOR TEST is final phase of rebuilding locomotive traction motor at Salt Lake City.

A growing role for contract shops

GE's Service Shops Department has been increasing its business with both railroads and transit authorities.

COMMUTATOR UNDERCUTTING as at Atlanta shop, is big phase of rehabilitation.



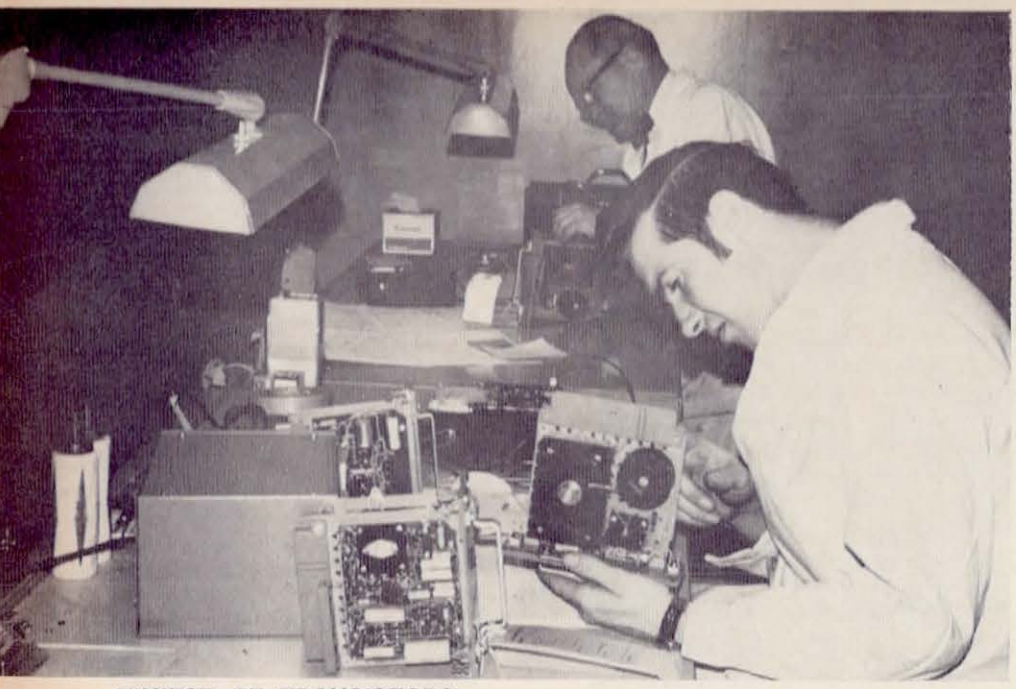
"High horsepower puts great emphasis on high quality," says Peter Van Dyke, general manager of General Electric's Service Shops Department. For this reason his organization has been refining its tooling, processes and inspections. Van Dyke observes that some railroad shops and contractors have been in difficulty recently meeting the more precise tolerances required for rotating machines, in view of today's increasingly severe rail service demands. Van Dyke does not intend that GE will be in such a position.

Currently, repair and rehabilitation of rail industry electrical and electronic equipment accounts for 15% to 20% of the business of GE's Service Shops Department. Certain of the facilities do substantially more. The North Bergen, N.J., apparatus service shop, for instance, is now moving into a contract that calls for mileage overhauls for 1,300 traction motors, during the remainder of this year, for the New York City Transit Authority. This is in addition to a steady volume of work from local railroads and other transit operations.

Actually, the rail volume at GE service shops is on the rebound. The organization goes back to the 1890s, about the time GE built the world's first mainline electric locomotive. The number and scope of these shops has expanded most rapidly since 1950. There was an interval, however, which saw some decline in GE's participation in the locomotive market and, consequently, in the rehabilitation of locomotive components.

● **A faster pace.** With the introduction of the all-GE U-series diesels a decade ago, this began to change. At about the same time the pace of transit quickened. Gradually, the rail industry has been a growing factor in GE service shop operations. Right now, Service Shops' transportation business is growing at the rate of 15% annually, and 85% of that is rail-oriented. Among the customers are common-carrier railroads, industrial railroads and transit authorities—a field that is growing faster than average. In the burgeoning transit market, GE also feels it is achieving greater penetration.

Currently, the large rotating units—

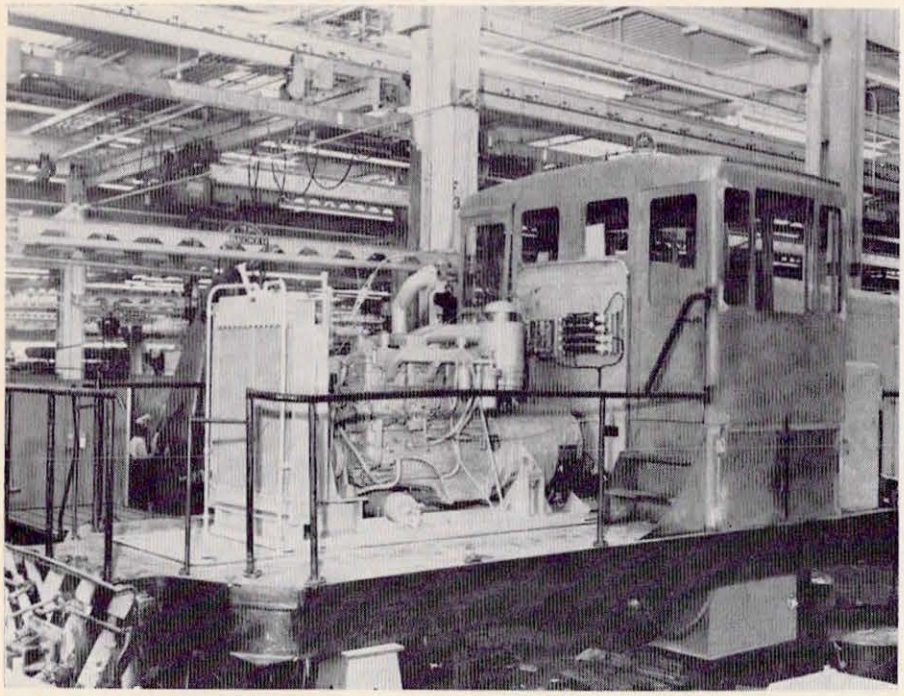


TINIEST OF TRANSISTORS

Control card testing, recalibration and repair are of growing importance; solid-state components require precise instrumentation and technicians' special skills.

traction motors (for cars and locomotives) and traction generators (for locomotives)—represent about five times the volume of smaller machines such as motor-generator sets, compressor motors and similar units. Then there is the non-rotating equipment.

As solid-state control has expanded on cars and locomotives (and GE was in this early), repair and recalibration of so-called "control cards" has been increasing at about 25% per year. And these assemblies of transistors, diodes and other semiconductors are increasingly complicated. While there are about a dozen of the "first generation" control cards, involving a maximum of ten circuits each, on GE locomotives, there are 66 "second generation" cards, each of which can have up to 44 circuits, on every one of Penn Central's GE-equipped Metroliner cars.



LARGE AS LOCOMOTIVES

Overhaul may encompass rebuilding of complete locomotives; many such units have been small GE-built switchers owned by industrial organizations.

● **Industry trends.** While the hardware for rolling stock has been changing, other trends have also become apparent on both railroads and transit operations:

—There is increasing pressure to reduce inventories with unit exchange;

—There is a growing trend to get out of many maintenance operations;

—The increasing sophistication (particularly of transit equipment) has required that start-up assistance by manufacturers be expanded to cover all of the regular diagnostic and maintenance services;

—Contract maintenance for transit properties means periodic work on a consistent number of traction motors and gear drive units.

To meet these trends and also fulfill the requirements of manufacturers and utilities, some 3,500 GE engineers and technicians are employed in over seventy service facilities from coast to coast.

Most of these GE facilities are the so-called electrical/mechanical (or apparatus) service shops. There are also about a dozen instrumentation service shops. Only a portion of them are involved in rail work—North Bergen (mentioned previously), Atlanta, Buffalo, Chicago, Cleveland, Houston, Los Angeles, Salt Lake City and San Francisco.

Virtually all service shops are independent of GE manufacturing facilities —being located primarily for the convenience of GE customers. The largest is the shop at Cleveland, which includes a major railroad operation. A number of the shops are capable of complete locomotive rebuilding. Some of these, however, are restricted to work on the small industrial-type switchers which GE produced for many years. One of these 50-ton units is currently based at the Houston service shop, available on a unit exchange basis.

● **Unit exchange.** While rebuilding and modernization of industrial locomotives is a rather routine service, similar operations for the motive power of line-haul railroads is still in its infancy. The Service Shops Department is converting Penn Central E-44 electric freight locomotives from their original mercury-arc rectifiers to the newer solid-state silicon controlled types at a six-per-year rate. Some warranty work and fire damage have been handled in the shops.

As a part of a program of "womb to tomb" responsibility for contemporary GE diesel-electrics, Service Shops is working closely with the Transportation Systems Division which builds the

U-series locomotives in the first place. Here, the unit exchange concept becomes a bit more involved.

In a general way, Service Shops has responsibility for unit exchange of electrical parts, while Transportation Systems handles similar work for mechanical components such as diesel engine parts. The unit-exchange pool of traction motors at Salt Lake City service shop, for instance, may include brand new units from Erie, Pa., site of Transportation Systems' operations, others which have been completely remanufactured at Erie; or motors which have been rebuilt to factory standards at Salt Lake. Any of these will carry a new motor warranty.

Some railroads call for "repair and return" for certain traction motor defects—in this case only specific damage is corrected and no new motor warranty covers the job. Certain shops are also tooled for rebuilding other manufacturers' traction motors.

In addition to the routine operations, Service Shops frequently gets involved with special customer projects. To better appraise the remaining service in armature roller bearings in traction motors, the Minneapolis shop has been working with so-called signature analysis. This is a system of vibration monitoring which was conceived on the Great Northern and is currently the subject of railroad/GE cooperation. And while inspecting, testing, machining, rewinding and rebuilding of motors and generators is the major phase of Service Shops' involvement with railroads, the capacity for electronics work is of growing importance.

Typical are the north Jersey operations. The North Bergen apparatus shop has 145,000 square feet of work areas and employs 200 in motor, generator, transformer and switchgear overhaul. In nearby Clifton, N.J., is a satellite electronics shop—the New York Instrumentation Service—which has about 6,000 square feet and has a staff of 20.

● **Electronics facility.** Because of the precise nature of the units handled, temperature and humidity of the Clifton work areas is closely regulated. Today's rapid-transit-type components take highly sophisticated tests and test gear. Special panels and consoles are used for trouble-shooting and adjustments of the parts which include the static control cards from locomotives and rapid transit cars, panels for transition and excitation control, governors, speedometers and many other components. Among Clifton's customers are Metropolitan Transportation Authority (the Long Island); Penn Central (Metroliners); Port Authority Transit (Philadelphia-New Jersey); and Chicago Transit Authority. ■

AAR Mechanical Division: San Francisco, June 18-19

The mandatory date for ACI labeling of cars has been set back seven months. The AAR/RPI Tank Car Research Committee has started its study of possible improvements in tanks and car structures under derailment conditions. Interline operation of freight locomotives continues to expand. It is in the light of these, and many other car and motive power developments, that the AAR Mechanical Division convenes for its annual meeting in San Francisco on June 18 and 19.

For two days railway mechanical officers will consider the challenges which high-capacity, high-speed railroading imposes on their equipment and their maintenance operations.

Thursday, June 18, 1970

9:00 a.m. to 5:00 p.m.

Address: R. D. Spence, vice president-operations, Southern Pacific.

Chairman's Address: C. A. Love, chief mechanical officer, Louisville & Nashville.

Division business:

Report of General Committee

Discussion of Committee Reports:

Locomotives and Locomotive Fuels and Lubricants;
Wheels and Axles;
Specifications for Materials.

Address: Dr. William J. Harris, AAR vice president-research and test department.

Discussion of Committee Reports:

Electrical Equipment—Rolling Stock;
Tank Cars.

Presentation: Why ACI labels should be properly applied, by F. I. Stites, senior engineering specialist, Sylvania Electric Products.

Discussion of Committee Report:

Freight and Passenger Car Construction.

Friday, June 19, 1970

9:00 a.m. until completion

Address: B. F. Biaggini, president, Southern Pacific.

Discussion of Committee Reports:

Arbitration;
Prices for Labor and Materials;
Journal Roller Bearings;
Loading Rules.

Address: Mac E. Rogers, director, Bureau of Railroad Safety. Federal Railroad Administration.

Discussion of Committee Reports:

Brakes and Brake Equipment;
Couplers and Draft Gears;
Specially Equipped Freight Cars.

Address: H. M. Williamson, chief engineer, Southern Pacific.

Discussion of Committee Report:

Lubrication of Cars and Locomotives.

Election

Adjournment.

These unit trains have everything

To haul its 588 aluminum gondolas over Penn Central, Detroit Edison is also acquiring 22 diesels.

By FRED N. HOUSER, Mechanical Editor

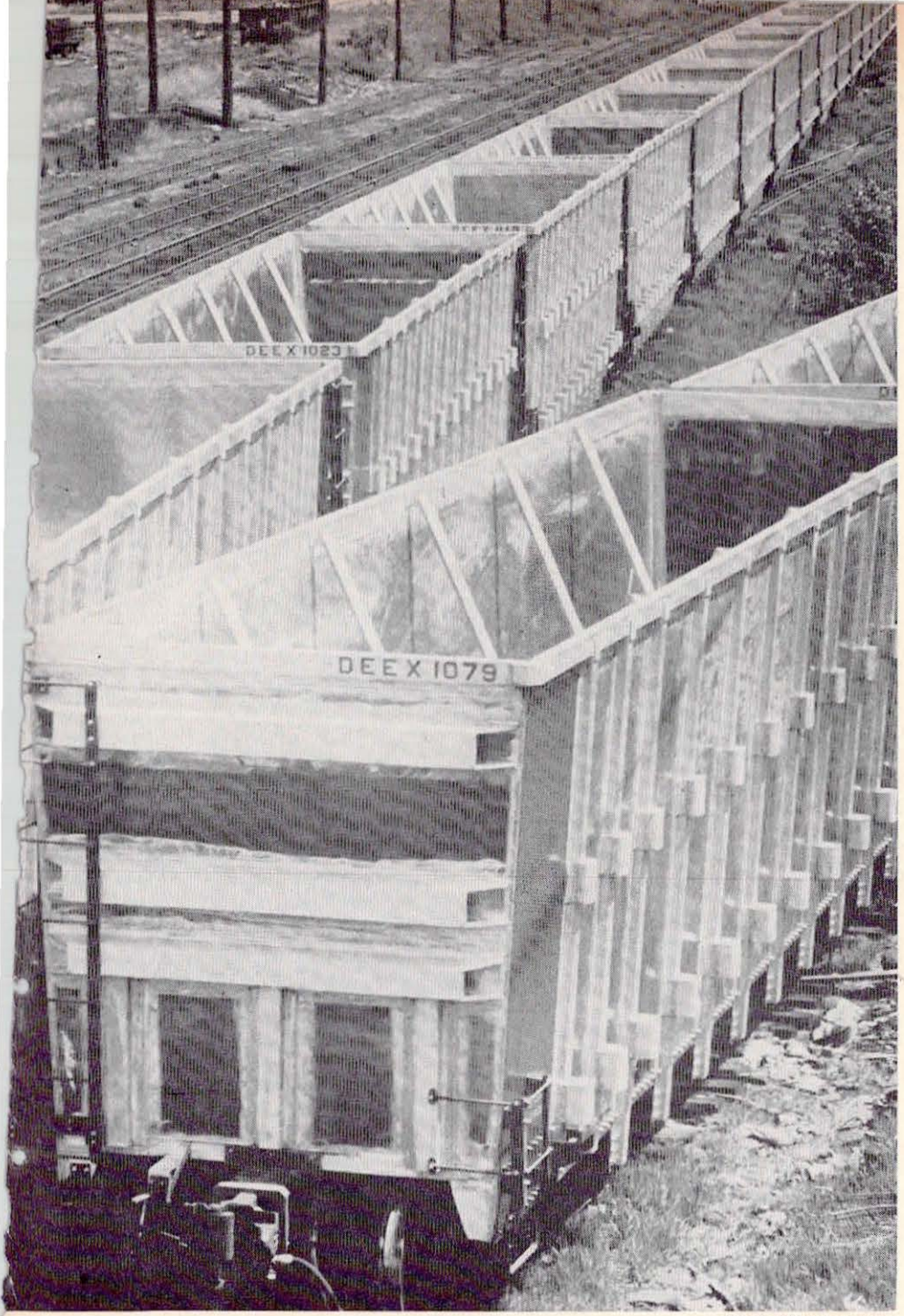
As the unit train has evolved in the past decade, it has sometimes been asked: How far can this transportation concept go? One answer would now seem to be: Not much further than Detroit Edison has gone with its new trains.

For the first time a major utility has ordered not only the cars for hauling its coal, but also the locomotives for pulling them over a line-haul railroad. Involved will be 588 gondola cars and 22 diesel road locomotives which are to be used in four trains moving 8 million tons of coal annually from West Virginia to southeastern Michigan.

This coal delivery system—developed in conjunction with Consolidation Coal, Penn Central and McDowell Wellman —is a vital phase of Detroit Edison's $500 million-plus Monroe Power Plant project. Now building is one of the largest steam-electric generating stations which will increase the utility's capacity by over 3 million kilowatts in the next three years.

● **Most economical.** Walker Cisler, DE's board chairman, says that studies showed the four coal-fired generating units and an integrated fuel supply system would provide the most economical source of electric energy at Monroe, 40 miles southeast of Detroit. "Coal production, transportation, electric energy production and financing, as planned for our Monroe Power Plant, is a complete economic system in itself," explains Cisler. "The economic results of this concerted undertaking will be felt not only in Michigan but also in neighboring states where the coal is mined and transported."

Right now there is also economic fallout at points as widely dispersed as Clifton, N.J., and LaGrange, Ill. The Fruehauf Railcar Division at Clifton is beginning fabrication of the second of DE's trains, having recently completed delivery of the first lot of 152



Black Starr for Alcoa

LOCOMOTIVES, including EMD SD40 (left) and GE units coming next year, are being delivered over extended period to match utility construction. Fruehauf car production is similarly timed. First generating unit goes on line early in 1971.

aluminum-body, steel-underframe gondolas. At LaGrange, Electric-Motive is completing the six 3000-hp, six-motor SD40 locomotives called for under DE's 1970 procurement plans. Early next year General Electric is to build six U30C locomotives, similar in size and rating to EMD's. Subsequently, EMD will deliver five more SD40's in April 1972 and five more the following December.

There is a similar stretchout of Fruehauf's deliveries, to match completion of the four 800,000-kw generating units at Monroe. The first train, already completed, is to begin operating into Monroe during August when the coal stockpile will be started in anticipation of the firing of Unit No. 1 early in 1971. The second group of cars is to be delivered in September; the third in April 1971 and the fourth in April 1972.

For aluminum producers, the decision in favor of their metal for the bodies of these freight cars has been a sort of welcome downpour after a protracted drought. A decade ago it was Southern that caused a railroading sensation by its acquisition of a big fleet of aluminum body covered hoppers and gondolas. This time Alcoa and Reynolds are splitting the 7 million pounds of aluminum plate, sheet and extrusions required for the 588 DEEX cars.

Says Reynolds' William B. Power, also railroad and rapid-transit subcommittee chairman of The Aluminum Association: "The increased coal-carrying advantage of seven tons per car means that each train will exceed its required payload, while reduced cycle maintenance programs will assure Detroit Edison of effective car utilization." He predicts that several other utilities are going to follow Edison's decision for aluminum unit trains for movement of their coal.

M. Lee Peterseim, Alcoa's manager of railroad sales, expects that aluminum-bodied coal cars will continue "to secure greater prominence in the railroad industry." He adds that Alcoa has emphasized for many years the advantages of extra payload, lower maintenance costs, longer car life, absence of painting or lining and similar economic factors. Now Alcoa finds that "carbuilders and users in increasing numbers are agreeing."

● **More coal-fired stations.** Peterseim explains that "based upon the number of new coal-fired/steam power stations planned by utilities, 1,200 to 1,400 new coal cars annually will be required for the next 8 to 10 years. Economic and material considerations suggest that a substantial number of the projected new cars will have to be aluminum."

Along with the unusual feature of utility-owned motive power, the trains themselves represent another "first" in being composed of 125-ton cars. Never before have such high-capacity cars been moved regularly in whole trains, rather than individually. Since the aluminum body of each weighs only 11,580 pounds for a total capacity of 5,160 cubic feet, each car will be transporting more than 131 tons of coal.

Because of the length of the unloading loop at Monroe, no train can be over 146 cars. It is expected that each will represent a weight of approximately 17,000 tons.

Board Chairman Cisler has often referred to the systems concepts involved in Monroe's planning and such coordination of activities extends down to subsystems—such as the car design and unloading arrangement.

Fruehauf Railcar stresses the pioneering nature of the "Monroe Task Force" which cooperated in finalizing car design after Fruehauf's bid for an aluminum body, steel-underframe gondola had been accepted in June 1969.

Harry W. Crank, vice president and

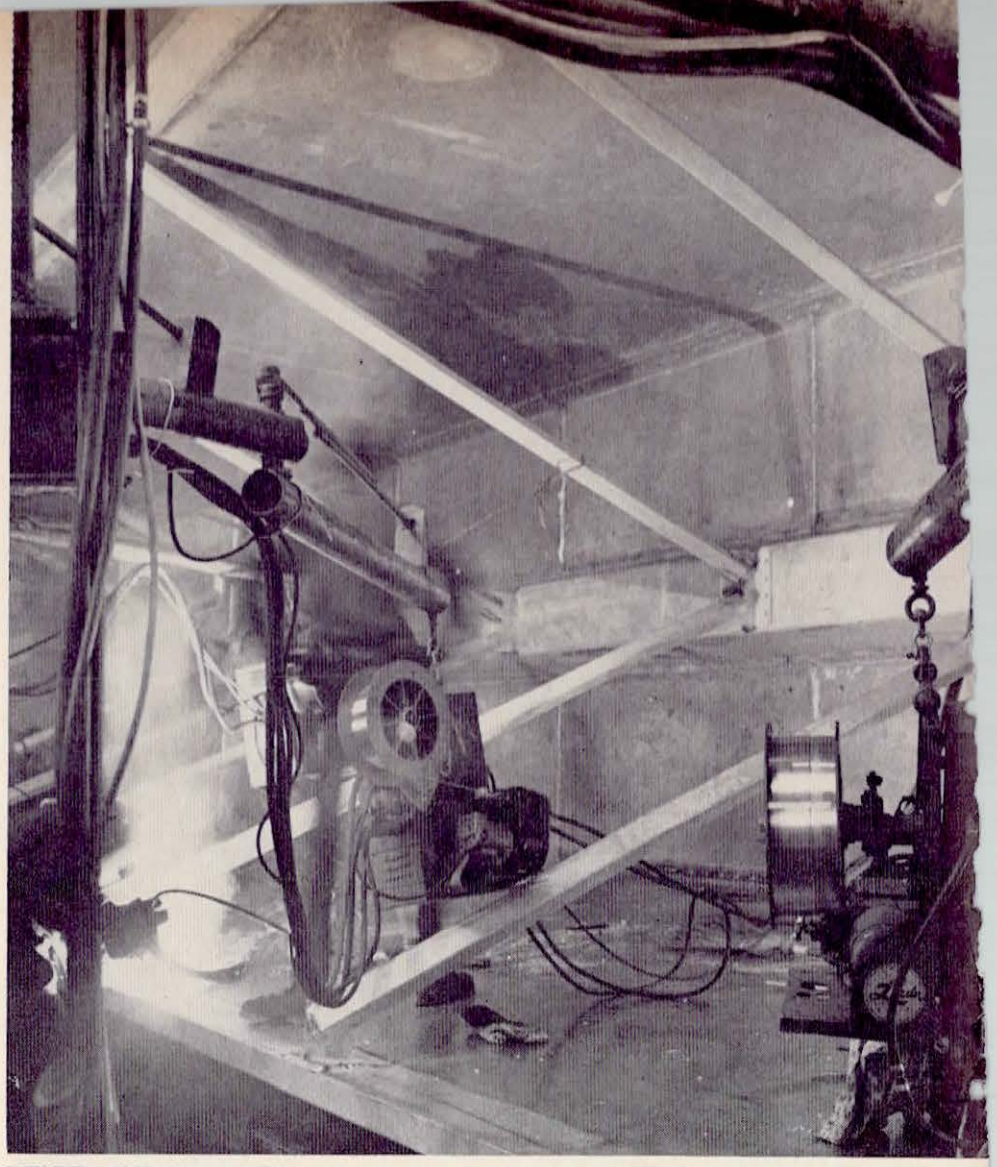
general manager of Fruehauf Railcar, emphasizes that his firm bid on an all-steel version, as well as the composite aluminum-and-steel design finally accepted. "The decision on materials was our customer's, based on economic studies of his particular operation," he adds, noting that Fruehauf Railcar builds cars of either (or both) metals. This carbuilder has long promoted designs involving steel underframes and bodies.

● **Complete analysis.** As well as meeting the utility's every specification, the cars were designed to meet each AAR requirement and probably represent the most extensive stress analysis ever made by Fruehauf's engineering group. Sargent & Lundy, consultants for Detroit Edison, had indicated the general configuration of the gondolas on which bids were based. It was from this point that the Monroe Task Force became active.

Once Fruehauf had prepared the engineering drawings for the gondola, they were checked for the car's adaptability to mine loading facilities, for over-the-road characteristics, and for its compatibility with the unloading system at Monroe. The group's representation included the utility, its consultant, Consolidation Coal, Penn Central, McDowell Wellman, Alcoa, Reynolds, and National Castings—producers of the couplers used on the cars.

In over-all dimensions, the cars are similar to more than 300 steel gondolas which already serve Detroit Edison's Trenton Channel and River Rouge power stations. One requirement was that the Monroe dumper be also capable of unloading the older unit trains. This fixed the length over coupler pulling faces for the new cars at 55 feet 9 inches. Sides taper outward, so the top of the car is approximately a foot wider than the width at the bottom floor.

● **Countering rock-and-roll.** Most of the 125-ton cars built have been tanks and covered hoppers. Much attention was given to assuring that the projected DEEX gondolas would be free of rock-and-roll problems which had plagued some earlier unit coal trains, even though they had smaller cars. To lower the loaded center of gravity as much as possible, the car has two floor levels. That between the trucks is nearly 14 inches lower than the portion over the wheels. This produces a center-of-gravity height of 87 inches, well below the AAR's limit of 98 inches.



WELDED ALUMINUM body produces total car weight of 51,800 pounds. While Fruehauf Railcar has had much experience with aluminum fabrication and assembly, it uses variety of materials in carbuilding. Car is rotated for welding.

Truck center distance is 42 feet—appreciably more than the 39-foot length of conventional rails. This feature is aimed at eliminating a source of rock-and-roll excitation which brought some earlier high-capacity cars to grief. In addition, the Barber trucks and the carbodies have been designed to accept any of three supplemental arrangements for producing a smooth-riding car.

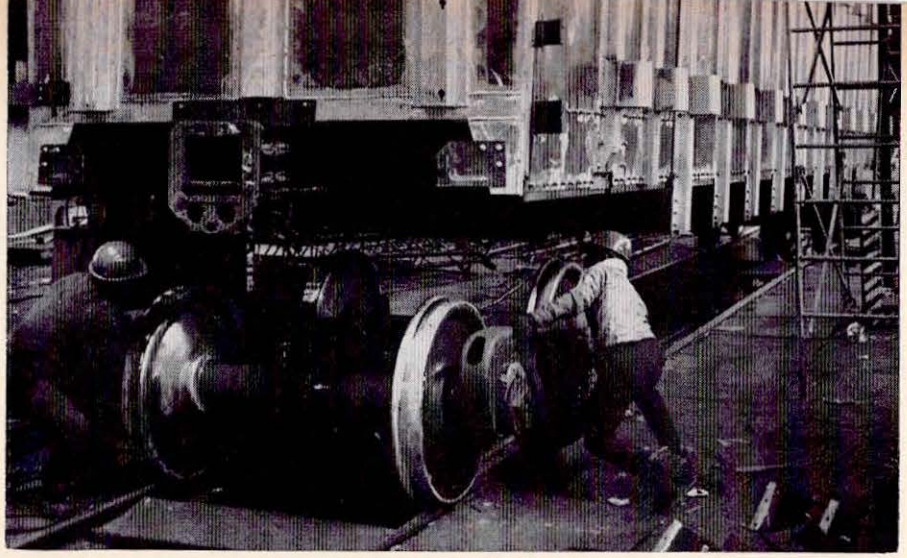
The first 152 cars are fitted with the Stucki HS-3 Hydraulic Snubber. Two other arrangements—the MDA Motion Damping unit or the Barber Center Plate Extension Pad—could be used on these, or subsequent, cars. Trucks have springs with travel of 3 11/16 inches, 38-inch forged steel wheels and a 6-foot wheel base.

The gondola has a height over rail of 13 feet 9¾ inches with a maximum inside height of 11 feet 5⅜ inches. The center sill is a conventional rolled steel section. Other portions of the welded steel underframe are of generally conventional configuration. The aluminum body is a welded structure with Alloy 5083 sheet and plate, and Alloy 6061 for extrusions.

An aluminum plate 11 feet wide, 50 feet long and ¼ inch thick forms each of the carsides with extrusions up to 50½ feet long used for the top structure and side posts. Welded at two points to each of the posts are pads to extend the width of the tapered body so it will be properly supported in the Monroe dumper, which is profiled so that even conventional square-body hopper cars can be unloaded.

● **Aluminum and steel.** Freuhauf production men always give careful attention to attachments between an aluminum body and steel underframe, forestalling any possibility of electrolytic action. With such preparation, according to a Fruehauf spokesman, there has been absolutely no such difficulty in a decade's heavy service involving large covered-hopper fleets. The mating surfaces are primed with zinc chromate and coated with a special compound prior to mechanically fastening the two big subassemblies together.

The DEEX car has an ABD air brake



CARBODY goes on 125-ton trucks at Clifton, N.J. Designs of National coupler and striker were coordinated with McDowell Wellman's positioner at Monroe where arm contacts the end of the center sill to move entire train.

Partial List of Suppliers
Detroit Edison Gondola Cars

Extrusions, sheet and plate	Aluminum Company of America Reynolds Metals
Couplers, strikers, yokes	National Castings
Draft gears	W. H. Miner
Truck frames, bolsters	Scullin Steel
Truck springs	American Steel Foundries
Snubbers and side bearings	A. Stucki
Wheels and axles	Standard Steel Division
Roller bearings	Timken Company
Brake, bearing adapters	Abex Railroad Products
Air brake, detector valve	Westinghouse Air Brake
Hand Brake	Ellcon National

with L-1 Wabco Detector Valve functioning to regulate pneumatic pressure so that retarding effort is varied between the empty and loaded states. Light weight of the car is 51,800 pounds; maximum weight on rail is 315,000 pounds established by its 7- by 12-inch journals. The braking system is an Abex High-Friction Truck-Mounted design with composition shoes. For several of the specialty suppliers these 125-ton cars represent the first installations of their devices on such high-capacity equipment.

Approximately half the cars will have National Rotary Type F couplers at both ends. The remainder are being fitted at both ends with conventional F couplers. Trains are then marshalled so each car is capable of being unloaded individually in a rotary dumper without uncoupling. This is but one phase of a train unloading system which has come in for much attention.

● **Dumper design.** Cleveland-based McDowell Wellman has the contract for the world's largest train positioner/dumper at Monroe. Specified is "turnkey" management of the entire coal handling facility involving its engineering, procurement, manufacture, erection and initial operation. McDowell Wellman also will train the Detroit Edison operators in every phase of unloading, stockpiling and reclaiming involving maximum rates of 4,500 tons per hour. The automated facility is to have two operators.

The 4,500-tph dumper/conveyor can feed the power plant while simultaneously feeding or reclaiming the storage piles. Within the plant a multi-level conveyor network provides alternate flow paths to the 28 silos serving the four generating units.

Detroit Edison has contracts extending a quarter century to cover its coal supply from mines near Blacksville in northern West Virginia. The unit trains will operate on 72-hour cycles between these mines on Penn Central's new $20-million, 35-mile Waynesburg & Southern line (RA, July 29, 1968, p. 11) and Monroe. Silos hold the prepared (⅜-inch and smaller Pittsburgh No. 8 Seam) coal for rapid surge loading of each train on its arrival. The train will then move out immediately on its 360-mile run to Michigan, via Waynesburg, Pa., Pittsburgh, and on northwest.

Penn Central has already upgraded portions of secondary lines, including a segment of subsidiary Pittsburgh & Lake Erie, to passenger-service standards for the high-speed freight runs. Detroit Edison's locomotives are being fitted for radio remote control with two units to be used at a mid-train position as a normal procedure.

Detroit Edison is assuming all costs of fuel and routine maintenance for the locomotives. During a 10-hour interval at Monroe, locomotives will be serviced and fueled and the train inspected, along with the 4½-hour unloading cycle. McDowell Wellman has designed for a 76-second-per-car dumping. When Monroe gets to full capacity, one of the 17,000-ton trains is to arrive every 18 hours.

● **Train positioner.** Locomotives will not be switched out, but will be at idle, as the train is processed through the dumper. Consequently, the positioner has a pull of 300,000 pounds, capable of moving five locomotives and a caboose as well as the 146 loaded coal cars. It is designed to operate automatically with the utility-owned gondolas and may be put in the manual mode to unload conventional hopper cars. There is also a manual override to permit the locomotives and caboose to be moved through the dumper.

A McDowell Wellman spokesman points to the coordinated effort which was necessary to produce an unloading system compatible with all other phases of this big modern power plant and its coal delivery. Much work had to be done with Penn Central and Fruehauf, even to establishing the proper clamping pressures for cars with aluminum bodies.

All components of this most ambitious of coal delivery systems are approaching completion. The Monroe dumper and positioner are installed. Work proceeds on their appurtenances. Penn Central has completed its track upgrading. Consolidation Coal's loading facilities are ready. The 152 cars have been moved to western Pennsylvania and are soon to be making a trial run.

The goals, as summarized by one long associated with the Monroe Power Plant project, are two-fold. First, coal is to be moved at the lowest possible cost. Second, it is to flow with a maximum degree of reliability. ■

ADVERTISING

Are railroads getting their message

The experts say yes. Railroad ad dollars are producing big measurable returns. The major drawback is that ad budgets are still too slim—and are often viewed as expendable.

Railroads are spending more than $20 million a year on advertising. Are they getting their money's worth?

The answer—based on interviews with media men both inside and outside the industry, as well as with shippers and opinion leaders—is that railroad ad dollars are working harder than ever before.

Advertising standards have risen sharply—more sharply, in fact, than ad budgets. For the spenders, the feedback is good. By all known yardsticks, they are getting their story across.

The image-building campaign of the Association of American Railroads—an industry-wide effort to which all railroads contribute—is already producing solid results in the form of a heightened public awareness of the essential role of railroads in the space age.

At the same time, the service-selling campaigns of individual carriers are having their own measurable impact. In this category, the Southern has a revealing story to tell.

● **The bottom line.** Says Southern President W. Graham Claytor, Jr., whose Green Light ad campaign won the Railway Progress Institute's Golden Freight Car Award for outstanding freight-traffic promotion:

"To me the proof of any sales effort is the bottom line. Our ton-miles in 1968, the first year of the Green Light program, were up 9% from the year before. Certainly the Green Light effort contributed significantly to this increase."

There are cynics who say that this kind of increase is more likely to be a phenomenon of time or geography than anything related to a specific promotion effort. Southern's William F. Geeslin, assistant to the president, does not agree.

"Our rate of gain in 1968 was more than three times our 1967 gain. It was almost triple the 1968 rate of gain for all Class I railroads and more than triple the 1968 rate of gain for Southern District railroads," Geeslin told the Association of Railroad Advertising Managers at their annual meeting in San Francisco.

Happy with the proof that it finds in the pudding, Southern is continuing its Green Light campaign at full blast.

● **AAR campaign: On target.** It is harder to measure the impact of a more broadly-aimed campaign such as that now being waged by the AAR at a cost of $5 million a year, but it is not impossible. Studies conducted by three highly-regarded independent research organizations—Daniel Starch & Staff, A. C. Nielsen, and the Gallup Organization—suggest that the AAR's campaign is solidly on target.

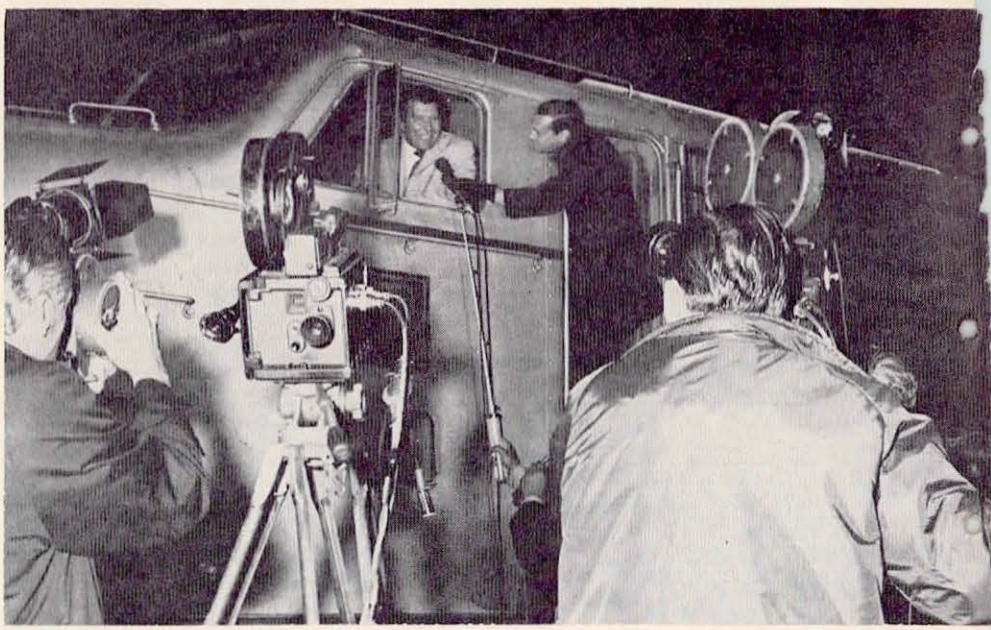
Starch interviewed readers of Time and Life, and found that the AAR print-media ads ranked first in 48 out of 50 product/service categories of advertisers represented. The railroad ads were outpulled only by passenger-car ads and by a soft-drink pitch. The rail-

Advertising Outlays: Class I Railroads

	Total	Freight	Passenger
1960	$20,814,326	$ 9,682,614	$11,131,712
1961	16,985,669	7,903,942	9,081,729
1962	17,721,437	8,939,528	8,781,909
1963	18,491,019	9,958,302	8,532,717
1964	19,328,647	10,454,176	8,874,471
1965	19,689,411	11,435,795	8,253,616
1966	18,943,983	12,216,485	6,727,498
1967	17,923,442	12,024,487	5,898,955
1968	19,570,985	14,347,926	5,223,059
1969	21,007,874	16,624,020	4,383,854

Source: ICC Account 353, which includes not only media expenditures but related promotional expenses. Totals include AAR ad outlays, which are broken down according to contributing roads' freight/passenger revenues.

OUTER (AND INNER) SPACE HELP



ASTRONAUT WALTER SHIRRA is railroads' official TV spokesman, also garners considerable extra publicity for rails whenever he makes a public appearance. Surveys show AAR campaign is having desired impact.

across?

The Top Ten Spenders in 1969
(With total operating revenues)

Santa Fe	$2,732,387	($719,216,442)
Union Pacific	2,295,325	($630,406,829)
Penn Central	1,946,707	($1,651,978,966)
Seaboard Coast Line	1,039,413	($484,636,734)
Southern	1,016,603	($378,360,556)
*Great Northern	1,001,598	($289,124,637)
Illinois Central	808,732	($322,700,267)
Southern Pacific	781,138	($923,921,772)
Chesapeake & Ohio	775,242	($413,185,799)
*Northern Pacific	737,487	($214,093,497)

*Now part of Burlington Northern.

road ads scored higher in the Time/Life public-awareness surveys than, for example, those of airlines and those of TV set manufacturers.

The Nielsen survey, meanwhile, found that in a three-month period studied, three AAR television ads—the Astronaut, the Eclipse and the Steer—were seen by 79% of the adult viewers in 88% of the TV homes in the U.S., a total of 97.3 million adults in 51.5 million homes.

The Gallup Organization had the advantage of having done a public-opinion poll on railroads in 1968 as well as in 1969, and therefore could make some comparisons. Gallup in 1968 found that 79% of the people questioned believed that railroads contributed to their well-being. In 1969, with the AAR's new campaign well under way, this figure had risen to 88%. In 1968, Gallup found that 49% of the people regarded railroads as being progressive in varying degree, while 36% did not. The 1969 survey found 72% giving railroads some kind of progressive image, with only 17% at the opposite end of the spectrum.

(Phase I of the AAR campaign, now drawing to a close, has been designed to project the image of railroads as being an essential industry. To help dramatize this—and to drive home to the public the continuing importance and vitality of railroads in the space age—the AAR's new agency, McCann-Erickson, engaged the services of Astronaut Walter Schirra, who has appeared in railroad TV ads and who makes public appearances in the industry's behalf.

(Phase II, tentatively scheduled to begin this fall, will zero in on specific objectives which railroads feel must be achieved in the way of national transportation policy if they are to continue to play their role in space-age America.)

● **Still a big job ahead.** While there is broad agreement that the AAR campaign has been on the whole successful, and while industry ad men continue to emphasize such success stories as that told by the Southern, there is also a widespread feeling among railroad advertising and public relations executives that much remains to be done.

What is wrong with railroad advertising? These are the points that are most often and most strongly made by the industry's own ad experts:

—Railroads are still too niggardly with their ad dollars. In 1968, the last year for which comparable figures are available, railroads spent 18 cents out of every $100 of operating revenues for advertising. Airlines spent $2.51. While intercity truckers spent only 16 cents, this figure can be misleading since many trucking ads are paid for by suppliers through a continuing national campaign managed by American Trucking Associations.

"Railroad management tends to regard advertising as a dubious expense to be curtailed at a moment's notice" complains the ad manager of one big western road.

Says another: "The current cash shortage is hurting the ability of railroad public relations and advertising men to get enough dollars to do the advertising job as it is needed."

And a third says: "Only a relatively few railroads give advertising high priority in terms of attention and budget. What we need are a lot more lines

TELL THE STORY ON 2 LEVELS

To meet your growing needs we pioneered in inner space.
Boosting our capacity to serve you.
This car is 25 feet longer than a bowling alley.
More than twice as long as a standard boxcar.
Big enough to move 60 acres of tobacco in huge heads. We designed it for a special need, and for the economy that comes from bigger loads.
We also pioneered with a 110-ton capacity car for grain. A 100-ton coal car. 60-foot boxcars. And others all extra large to meet special needs, hold down your costs.
Interesting thing: the bigger the cars, the tighter the squeeze on waste in distribution. Southern Railway System, Washington, D.C.
SR
SOUTHERN
GIVES A GREEN LIGHT TO INNOVATIONS THAT SQUEEZE THE WASTE OUT OF DISTRIBUTION

INNER SPACE was theme of this Southern Railway ad, part of prize-winning Green Light campaign. It is designed to sell Southern service and is doing just that, with measurable results at the cash register.

TEN ROADS ACCOUNT FOR TWO-THIRDS OF ALL SPENDING

making an adequate advertising investment."

—Continuity is lost when ad programs are lopped off suddenly. "Too often, when times start to get tough, managements cut off a good ad program that has just gotten well under way," said one ad manager who has been through this experience. "This kind of cost-cutting is akin to firing a good salesman once you have got him trained and ready to do a real selling job for the company."

—There is often a lack of real communication between the ad manager and top management: "An ad man hasn't got a chance unless he is brought in on what the top brass is thinking."

—Traffic managers, in particular, do not always have a proper understanding of what advertising can do in the areas of sales and customer benefits.

—Advertising men need a closer relationship with key sales people. One midwestern executive asks: "Is the advertising man brought into a new service or new pricing concept when it is a twinkle in the eye of marketing or operations? Is he given the opportunity to join in planning and timing the introduction of a service or price to give it real sales support?" In the case of this particular railroad, the answer is "yes"—advertising is this railroad's sales promotion arm. In many other cases, the answer is at best "sometimes" and often it is "never."

—Misleading advertising creates a credibility gap between carrier and customer. "We are too often asked to make a silk purse out of a sow's ear," says one ad man. Another observes: "Few railroads are as yet oriented to their markets—their customers' needs or desires. As a result it is often difficult to write positive ads without the risk of exceeding performance."

(In a similar vein, a European railroad public relations executive comments: "For advertising purposes, railroad transportation is a product like any other one. You can, by spending millions, get a certain percentage of people to try your product, but unless they are satisfied with their experiment and unless they received the service they expected, they will become spokesman against your product and lost forver to your cause. Sometimes an impolite conductor, with one word, may throw away thousands of dollars of advertising. So advertising by itself means nothing. Only advertising with service will get results.")

—While the calibre of railroad advertising men compares favorably with that of ad men in other industries, there is room for improvement. One of the industry's acknowledged pro's says: "Railroad advertising people are not as alert or as creative as they should be, nor do they have the initiative to project the type of advertising badly needed by their customers."

Another comments: "Most railroad advertising lacks the creative flair of many consumer product ads, though there have been notable exceptions. Inasmuch as all advertising must command the attention of its intended audience to be effective, it is necessary that we produce advertising that achieves this goal. I would like to see more boldness, verve and imagination in railroad advertising."

● **The basic problem.** A midwestern advertising/public relations executive sums up the situation this way:

"Advertising as a tool of persuasion has not been used to full advantage by the railroad industry. There is some hope that the industry is coming to recognize the fact that until the public better understands the unique problem of the industry, which is unequitable regulation, railroads will not be able to solve their basic problems. . . .

"The AAR program—Who Needs Railroads?—is soundly conceived because it recognizes the fact that for many Americans, railroads have slipped out of sight. Starting with the first simple statements of Walter Schirra—understanding the day-to-day importance of railroads—the message gradually has been broadened. It seems to be getting through to the public.

"But the AAR program, important as it is, cannot succeed unless it is backed by similar programs of member railroads."

A number of railroads are backing the industry-wide program to the hilt. But the number is comparatively small. Ten railroads account for nearly two-thirds of total railroad advertising spending. A number of others who do not make the top 10 are also spending heavily on advertising in relation to their total operating revenues. But many others are not.

And there the matter stands. Qualitatively, no industry is doing more to change its image and peddle its product. Quantitively, much remains to be done. ■

EMD, ACF, RCA cited for ads

A locomotive builder, a carbuilder and a communications supplier have been cited by the Association of Railroad Advertising Managers for their "outstanding contributions through advertising toward a better understanding of railroads."

ARAM's Golden Spike award went to Electro-Motive. Silver Spike awards were presented to ACF and RCA. Merit awards went to Republic Steel and the Rohr Corp.

The awards were accepted by D. Gregg Cummings, advertising manager, EMD; George R. Corcoran, corporate manager of advertising and public relations, ACF; C. T. Coyle, director corporate advertising, RCA; Joseph E. Graves, Pacific Coast district sales manager for Republic Steel, who represented H. S. Heckman, director of advertising; and Larry I. Peeples, public relations manager, Rohr.

The presentations were made at a ceremony that climaxed the 46th annual meeting of ARAM in San Francisco.

Also announced at the awards banquet was the presentation of the $500 Gunthorp-Warren Printing Co.-ARAM Scholarship to John Nelson Ragsdale IV of Silver Spring, Md.

The following new officers were named: President, Laurence J. Barbeau, advertising manager, Milwaukee, succeeding Maynard O. Edwards, advertising manager, Norfolk & Western; first vice president, Charles R. Ward, acting general advertising manager, Union Pacific; second vice president, H. Pier Clifford, advertising manager, Southern; third vice president, Bernard E. Pedersen, director of advertising and public relations, Western Pacific.

ARAM's sessions featured a number of seminars. WP's Pedersen presided over a panel on direct mail in which Mrs. Gertrude Smith, of Rally Industries, Palo Alto, and Robert L. Hemmings, of Smith & Hemmings/Advertising, Los Angeles, also participated.

Southern's William F. Geeslin described that road's prize-winning Green Light ad program (see p. 38).

A panel on plant location, with UP's Ward presiding, featured presentations by Richard I. Lyons of Kaiser Engineers; Gary R. Lehman, of TRW Systems Group; and Ronald M. Reifler of the Fantus Co.

Supers' agenda to emphasize costing

When the annual meeting of the American Association of Railroad Superintendents gets under way June 23, the superintendents will find a lot that's familiar. AARS will be back in a familiar convention city—Chicago. The format will be the usual one—committee reports and discussion, interspersed with speeches. And the discussion topics will certainly not be strange to operating men—safety, training, terminal operations, costs.

If the topics and the problems aren't much different, however, the 1970 approaches may be—especially in the area of costing as related to operating dicision-making.

● **"Desperate need."** An AARS study committee on costing observes that past association reports have pointed out "with almost monotonous regularity . . . that the superintendent, trainmaster or other line officer is in many cases in desperate need of useful and appropriate information to make relatively quick and accurate decisions."

Mere statements of policy, the committee notes, fall short of meeting the need, but "providing operating officers with a cost table will go a long way toward giving them quantitative guidelines as to management policy. It is just not enough to tell a superintendent or other officer that he should give the best possible service at the lowest possible cost. This is a meaningless instruction. Of course, expenditures which do not save any money are to be avoided. Policy guidance is required, however, to tell how much to spend for how much improvement in service and, conversely, what degree of reduction in service quality can be tolerated for what amount of saving. When the costs of serving and the costs of not serving are quantified, decisions can be made rationally and judged objectively."

The committee puts special emphasis on the need for simplicity: "Cost ascertainment must be simplified if the 'cost of costing' is not to exceed its value. Cost data for operating officers must be simple if it is to be an aid rather than a burden. Cost material must be simple to eliminate the danger of misinterpretation, to assure, for one thing, that review of decisions will be made with an understanding of the knowledge available to the person making the decision."

● **Keep it simple.** In general, the committee says, "the way to attain simplicity is to stick to the things which decisions can affect. Many elements affecting operations are beyond the operating officer's control. He can't change a single-track line to a double-track line, so there is no need to calculate the costs and benefits of such a change. He **can** authorize an hour's overtime and save an hour's car time. And it's necessary, therefore, that he be able easily to estimate the cost of the one and the value of the other."

The committee's approach to costing isn't stuffy: "Another means to simplicity is approximation. Cost analysts love to carry their results to eight decimal places. In operating situations, this is worse than useless. The appearance of precision is deceptive . . . If the results of a decision are so close that refined calculation is required to tell which is better, either alternative is acceptable. The 'wrong' decision can't cost very much."

As for specific recommendations, the committee has two: (1) That a simple manual be prepared, showing items of cost which should be filled in for each particular railroad, and (2) that general directions be written for the determination of the actual numbers "on any given railroad or even in any given supervisor's jurisdiction."

● **Terminal costs.** An AARS study committee on terminal operations also deals at length with cost considerations, with these observations:

"One of the basic problems in establishing terminal controls in the past has been that the industry has failed to charge terminals as full cost centers. Superintendents and other operating men have all tended to run terminals in accordance with minimizing their chargeable costs. A number of areas are frequently ignored in establishing a terminal as a cost center—among them, per-diem costs, increased service cost down the line as a result of failure to properly block, cost of missed connections, loss and damage costs and final terminal crew costs.

"Certain indicators of performance—namely, thousands of net and gross ton-miles-per-train-mile, cars per train, cars handled per yard-engine-hour—ought to be stricken from the operating man's language whenever they fail to correlate closely with total operating costs and interfere with the true economics of ordering trains.

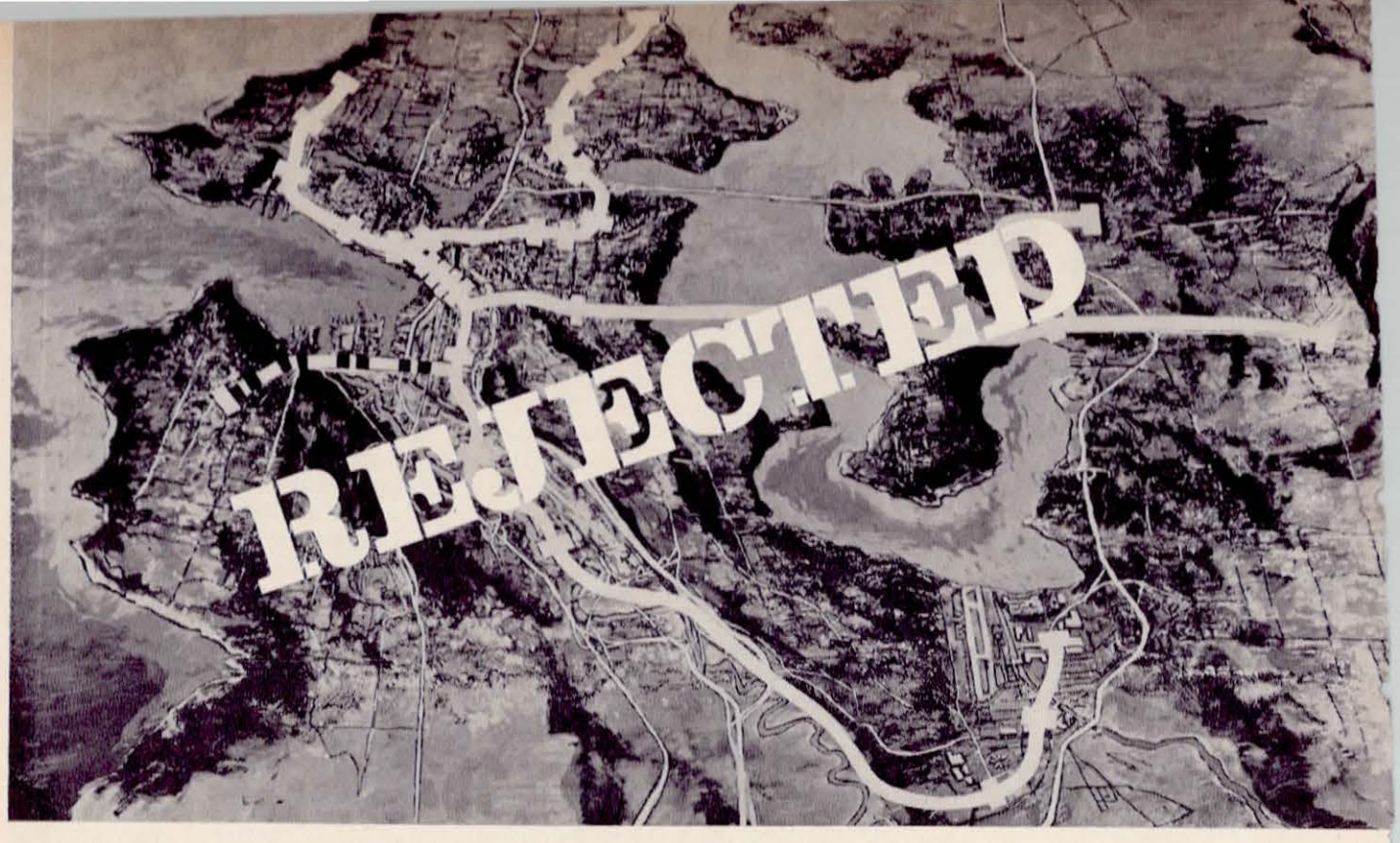
"What is needed most of all today is a new concept in terminal control that is rooted with, and tied closely to, concepts in service and cost performance. We need rules and guidelines for standardizing service where deviations from these guides will result in bearing cost responsibility—actual cost or paper cost or both."

● **Help from the computer.** Each important element of transportation activity, the committee notes, "should be related to a standard cost, and daily operating costs determined. The computer could then, through historical formula analysis of the same data, come up with a minimum cost and rate day-to-day operation as a percentage of theoretical efficiency . . . If revenue allocations are input, profit-and-loss statements in any of a number of categories may be determined—thus providing a powerful tool for probing into the problem areas of low or negative profitability."

Still another aspect of the same general subject is touched upon by a third AARS group, dealing with the training of operating officers as managers. The computer is a wondrous tool, the committee concedes, but unfortunately it is frequently found that the very fine data produced by the computer is either ignored or given too great a degree of consideration. Data from a computer reflects the results of an operation. Problems and their causes are detected by reviewing results. This can only be accomplished by utilization of both practical knowledge and computer data. The cause cannot be corrected nor the problem solved until it has been properly identified by competent analysis."

● **Needed: Managers.** It's the committee's position that economic and service demands "make it imperative that operating officers be developed as experienced managers rather than as technicians, car movers or maintainers of track and equipment." The study group does not down-rate technical and practical knowledge. But, it notes: "It is one thing to know how to move cars. It is another, more complex knowledge which permits a supervisor to move cars expeditiously and economically. It's one thing to be knowledgeable in the maintenance of track and equipment. It's another thing to make repairs expeditiously and still economically, to reduce out-of-service time and/or per-diem costs. The operating officer must be developed as a business manager."

The traditional charge to the superintendents will be given by P. H. Croft, president of the American Short Line Railroad Association. Speaker for the AARS annual luncheon June 24 will be Prime F. Osborn, president of Seaboard Coast Line. ■



Why Seattle said no to transit

It was not, say Seattle leaders, a vote against rapid transit—but a revolt against the economic and social malaise which afflicts the nation.

In the turbulent arena of rapid transit vs highways, count Seattle down—but not out.

Political and community leaders, though bitterly disappointed by the voters' overwhelming rejection of a $440-million transit bond issue May 19, are already quietly regrouping for another effort.

It will not come for at least 18 months, perhaps longer. Timing will be all-important. Because it was timing—bad timing—that killed transit at the polls again this year.

It was a conspiracy of circumstances, not directly related to transportation, that sent transit down to its second defeat in two years after a total investment—in planning and promotion—that is conservatively estimated at $2.5 million.

The Seattle vote had national implications. Transportation Secretary John A. Volpe reportedly looked on Seattle as a showcase project for the Federal aid program now pending in Congress. Other cities in various stages of preparing for transit votes were also watching Seattle closely.

MAYOR WES UHLMAN, shown as he inspected BART system prior to his own city's vote, says Seattle failed where San Francisco succeeded because the timing was bad.

For this reason, Seattle Mayor Wes Uhlman hopes that what happened in Seattle will not be misconstrued.

● **A protest vote.** "It was not a vote against rapid transit," Uhlman told Railway Age in an interview in his Seattle office. "It was mainly an economic reaction. Unemployment in Seattle is close to 10%. Boeing has cut back from 104,000 to 64,000 employees. There is a tremendous psychological fear of further unemployment.

"The vote was also a protest against a lot of things that are going on in this city and this nation which the people do not understand. We are in a time of tremendous social and political upheaval. What we had amounted almost to an anti-incumbent vote—a vote against the establishment. The people's reaction at a time like this is to say 'No.' Seattle needs rapid transit, and the people want it. But this was not the time to ask them to pay for it."

● **An early omen.** A Louis Harris poll taken several weeks prior to the vote appears to bear out Uhlman's thesis.

The poll found that 84% of the voters favored rapid transit vs more freeways; 73% favored a transit bond issue. But only 64% were willing to pay an additional $10 a year in property taxes to pay for transit, and only 53% were willing to pay $20.

"This should have been a warning that we were in trouble," says James Ellis, head of a blue-ribbon citizens group called Forward Thrust which was the chief architect and promoter of the transit plan. "What we were asking was not $10 nor $20 but $25. By extrapolation, this would have been supported by only 47% of the electorate. That was close to the actual vote."

It was very close. Transit this year

won a yes vote of 46.3%. A vote of 60% was required for approval.

Two years ago Seattle defeated a similar transit bond issue by giving it a yes vote of only 50.9%. Thus the vote this year was 4.6% less than that achieved in 1968.

In this comparatively small downslide, Seattle transit backers find a silver lining—because other Forward Thrust proposals, which like transit were also on the ballot in 1968, lost considerably more ground than transit. Community Center Bonds got a 17.9% smaller vote than in 1968; Storm Water Control Bonds were down 10.2%; Public Safety Bonds were down 21.7%. At a time when the tide was running strongly against any further commitments, transit made the strongest showing of all.

● **Swimming against the tide.** Forward Thrust's Ellis agrees that the basic problems were "economic concern and tax consciousness and a general feeling of uneasiness."

"We were drowned in a wave of concern about taxation, economic conditions and a variety of frustrations about which the average person is not optimistic," says Ellis. "In a wave of pessimism people are not about to exercise an act of faith. It is very much like swimming against an impossible tide. When you realize that, you had better relax and wait for the tide to change."

That is precisely what Ellis is now preparing to do. Forward Thrust, which did succeed in winning voter approval of $333,900,000 in public-improvement bond issues in 1968, will dissolve itself as soon as a final report is written. Ellis himself is bowing out of the transit picture.

"But I am confident that other leadership will pick up the pieces and move ahead," he says. "I would like to see the community re-examine the whole question 8 to 12 months from now, with the view of trying for a vote in 18 months to two years. I am not retiring from the world. But I am not volunteering to lead this effort again."

● **The lesson of Seattle.** What can other cities learn from Seattle's experience?

"There is the all-important question of timing," says Ellis. "That's hard to control. You have to plan a vote 10 months ahead. The immediate future is certainly not the time.

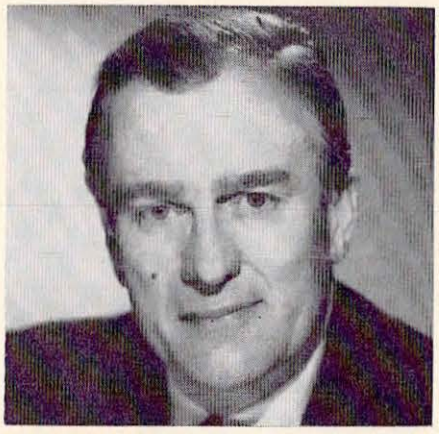
"I would also suggest that other cities look very carefully at the form of taxation they propose. We went for a property tax. A poll showed that a property tax ranked No. 11 among 11 possibilities with the voters."

There was broad and solid support for the transit bond issue—including that of Gov. Dan Evans, and that of former Seattle Mayor J.D. Braman, now assistant secretary of transportation in Washington.

● **Pro arguments.** Persuasive arguments were presented to the voters. Ellis summed them up:

"We start with the fact of our geography. From north to south the land is shaped like an hour-glass. From east to west, the bridges across Lake Washington and the Duwamish Waterway create even more narrow hour-glass corridors. Each restricted corridor for movement is already jammed during peak hours. This congestion will get worse as the number of automobiles increases.

"To permit free movement during peak hours throughout our existing and narrow corridors, we need a high-capacity, people-moving system which takes up very little space and can be built without destroying the areas through which it passes. This is rapid transit."



FORWARD THRUST Chairman James Ellis says the time has come to "relax and wait for the tide to change."

Others pointed out that it takes 48 acres of land for one mile of freeway construction, but only six acres for a mile of rapid transit.

Nobody denied that the ultimate 47.5-mile system (46 miles of rapid transit, 1.5 miles of bus expressways) would cost money. But the point was made, repeatedly, that (1) such a system would have to come one day and (2) every day of delay was escalating the cost. Since the 1968 vote, Forward Thrust estimated, the cost of the system had risen by $80 million due to inflation and other variables.

There was some opposition. "But I think it is generally agreed that if we had no organized opposition at all, we would have lost the vote at this point in time," says Larry Coffman, a former newspaperman who served as transit planning coordinator with Metro (Municipality of Metropolitan Seattle, a regional body).

The role of organized labor in the defeat will long be debated. Thousands of new jobs were promised—but the fear of an invasion of the unions by blacks is widely believed to have swung most of the unions against the plan.

● **Opposition from academe.** The academic community's opposition to the transit bond issue was voiced by Professor Edward M. Horwood, director of the Urban Data Center of the University of Washington, and Professor J. B. Schneider of the University's Department of Urban Planning. Horwood questioned the estimates of population growth and job location-patterns which underlay the plans drawn up by the De Leuw Cather consultants. He also questioned the ability of the city to get sufficient funds from the Federal government to complete the job. (If approved, the $440-million in transit bonds would not have been floated without assurance that other funds needed for completion of the $1.3-billion system would be forthcoming from Washington. There are some who believe that if Congress had completed action on the pending transit-aid bill prior to the Seattle vote, the results might have been different.)

Schneider argued that the area would benefit by the dispersion of industry and business to outlying areas—and that the money needed for rapid transit could be better spent in urban renewal.

● **Is there a better way?** The Seattle experience did this if nothing else: For all advocates of rapid transit vs freeways, it underscored the bitter fact that the cards are stacked against them from the outset.

"What happened here told us what we already knew—that it is a serious blunder to require two different types of responses by the public," says James Ellis. "For transit, we have first to get a vote to set up a planning agency, then a vote to finance an operating agency. For highways, no vote is needed. You simply say yes to an offer of tax money that can be spent only on highways."

Key transit leaders across the nation appear to share this view, especially in light of the Seattle record. It is likely that there will be increasing pressures, in state capitals as well as in Washington, for giving transit planners the same access to public funds that highway planners now have.

● **Picking up the pieces.** As for Seattle: "We now have to pick up the pieces," says Mayor Uhlman. "We must first turn to our short-range problem, which is Seattle Transit's $3.7-million annual deficit. But the long-range problem remains. We must re-examine all the alternatives. My own belief is that mass transit will have its day. It has to come. A city cannot be competitive with other cities without it." ■

If I were running

The Commuter

...I'd do everything I could to keep the trains running on time. Among that everything, I'd include more automation, more electronics and more lightweight cars.

My brother-in-law lives in south Jersey, and rides the new Camden-Lindenwold line into Philadelphia. He says it's the closest thing to push-button railroading he's seen since he got his first Lionel back in '38. He says nobody in his block, not even the wives, ever drives downtown anymore, because the schedules are so convenient and the trains are so clean.

Speaking of cleanliness, I'd also like to see cleaner trains. I was in Chicago last week and rode one of the CTA's new stainless steel cars. If SEPTA and CTA can put people on safe, clean, comfortable stainless steel trains, why can't this railroad?

What else? Oh yes, I'd make the timetables a little simpler and a little easier to read. The fine print and footnotes are okay for contracts, maybe, but not for timetables.

this railroad...

The Accountant

...I'd keep an eye on the little costs that snowball into big expenses.

For instance, do you have any idea how much it costs us to give a passenger car a bath? Or a new paint job? I'd get new stainless steel cars that don't show dirt and are so corrosion resistant that they never need paint.

Did you know that the price of power to roll an extra thousand pounds of car weight down the track adds up to hundreds of dollars over the lifetime of the car? So I'd do everything I could to trim the fat from my new rolling stock.

That's why I keep telling our management to get cars made out of nickel stainless steel. It's a real bargain. If I were running this railroad, I'd make it a stainless steel line.

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Circle 13 on coupon page 87

For D. C. Metro, crisis follows crisis

As the kids say these days, it has been a "heavy" year for the Washington Metropolitan Area Transportation Authority's Metro—that is, heavy going.

Perhaps headaches are inevitable for WMATA in a city where there is a great deal of truth to the saying, "In Washington, there exist only two topics of conversation: politics and real estate."

WMATA has collided in a big way with both.

Financing, minority hiring, station location, the sudden realization by D. C. residents that the 98-mile, $2.5 billion Metro system was soon to come to their doors, demolishing buildings and disrupting traffic; constant sniping by entrenched freeway forces and the jurisdictional welterwork of different Federal and local agencies and rival Congressional committees have all brought crisis after crisis to Metro. And it comes as no surprise to hear that such tensions have created staff problems on WMATA itself.

Originally, it was money that caused most of the headaches.

A month ago, WMATA's very survival seemed at stake.

"This is a miserable state of affairs," lamented WMATA Vice Chairman A. Leslie Phillips at that time.

"Our fiscal 1970 funds are in jeopardy awaiting action by the Departments of Labor and Transportation on minority hiring. Our fiscal 1971 funds are threatened awaiting action by the D. C. Government and the Transportation Department on the freeway program. Waiting is a luxury we can no longer afford."

Added WMATA board member James P. Gleason, "I don't know if any organization can stand to be kidnaped time after time. Each crisis just makes the blood pressure rise more frequently and the patient dies. I don't know if transit can survive another crisis."

Their despair was triggered by the threat of Rep. William H. Natcher (D-Ky.), chairman of the all-powerful District of Columbia Subcommittee of the House Appropriations Committee, to hold up future subway construction money unless more progress was made on Washington freeways.

Natcher's threat wasn't idle. He held up last December's Metro groundbreaking for 14 months in an earlier version of the freeway-subway controversy.

On another crisis front, DOT Secretary John Volpe had suspended award of new Metro contracts until an acceptable minority hiring and job-training plan is established voluntarily or imposed by the Labor Department. This to placate Washington blacks who have demanded a majority of Metro construction jobs.

The financing logjam was partially broken by appropriation late last month of the full Metro budget request of $180,028,000 for fiscal 1971 and advance appropriation for fiscal 1972 of $150 million by the House Appropriations Committee as the Federal contribution to WMATA.

Still unresolved as of this writing is minority hiring practices, although Volpe has promised issuance of a plan this week. His freeze on new contract actions caused postponement until June 16 and 17 of a scheduled June 2 bidding on two Metro critical path construction projects. Unless soon lifted, the freeze could affect WMATA's planned sale of $130 million in revenue bonds.

On top of all this, the recent realization that Metro's construction was an imminent fact and not a gleam in a designer's eye caused businessmen and residents to wake up and take notice.

No formal mechanism exists for Washingtonians to comment on transit facilities before the facilities are designed. Suits are now being filed charging WMATA failed to observe proper planning and public hearing procedures. In real estate-conscious Washington, as well as in nearby Virginia and Maryland, the location issue is a sleeper. Freeway locations, for instance, have been argued about for years before a shovel was lifted.

Similarly, staff problems within WMATA have surfaced, now that the Metro program is becoming a reality. The problems turn on who makes policy, the WMATA board of directors or the WMATA staff?

WMATA's board is composed of political and governmental leaders from the Maryland and Virginia suburbs and the District of Columbia. Each jurisdiction has two votes and the actual board membership changes annually, with a new chairman chosen each year.

House ready to move on transit-aid bill

The House Banking and Currency Committee is expected to move a Senate-passed transit-aid bill sometime this month, but there is a serious question as to how much aid will be contained in the bill when it reaches the House floor.

The bill would authorize $10 billion in Federal aid for transit projects and improvements over the next 12 years. In the next five years, it authorizes $5 billion in obligational authority, up from the $3.1 billion approved by the Senate.

The House Subcommittee hiked the figure after transit advocates, led by Dr. William J. Ronan, president of the Institute for Rapid Transit and chairman of New York City's Metropolitan Transportation Authority, pleaded for increased obligational authority over the next five years.

"It is important to note that many long-delayed projects are far advanced on the drawing boards, and could be launched immediately if Federal aid were available," said Ronan.

Another witness, B. R. Stokes, general manager of San Francisco's BART, told the Subcommittee that capital expenditures for transit of $20 billion are needed over the next decade, of which half should be spent in the next five years.

To complicate matters, the House Appropriations Committee, in reporting a $7 billion appropriations bill to fund DOT in fiscal year 1971, included a provision limiting Urban Mass Transportation grants in 1971 to $214 million.

Commenting on the transit aid bill's $850 million in obligational authority during fiscal 1971, the House Appropriations Committee said, "These obligations would be incurred prior to any formal presentation to the appropriations committees of the Congress. The Committee does not favor the grant of long-term contractual authority by substantive legislation."

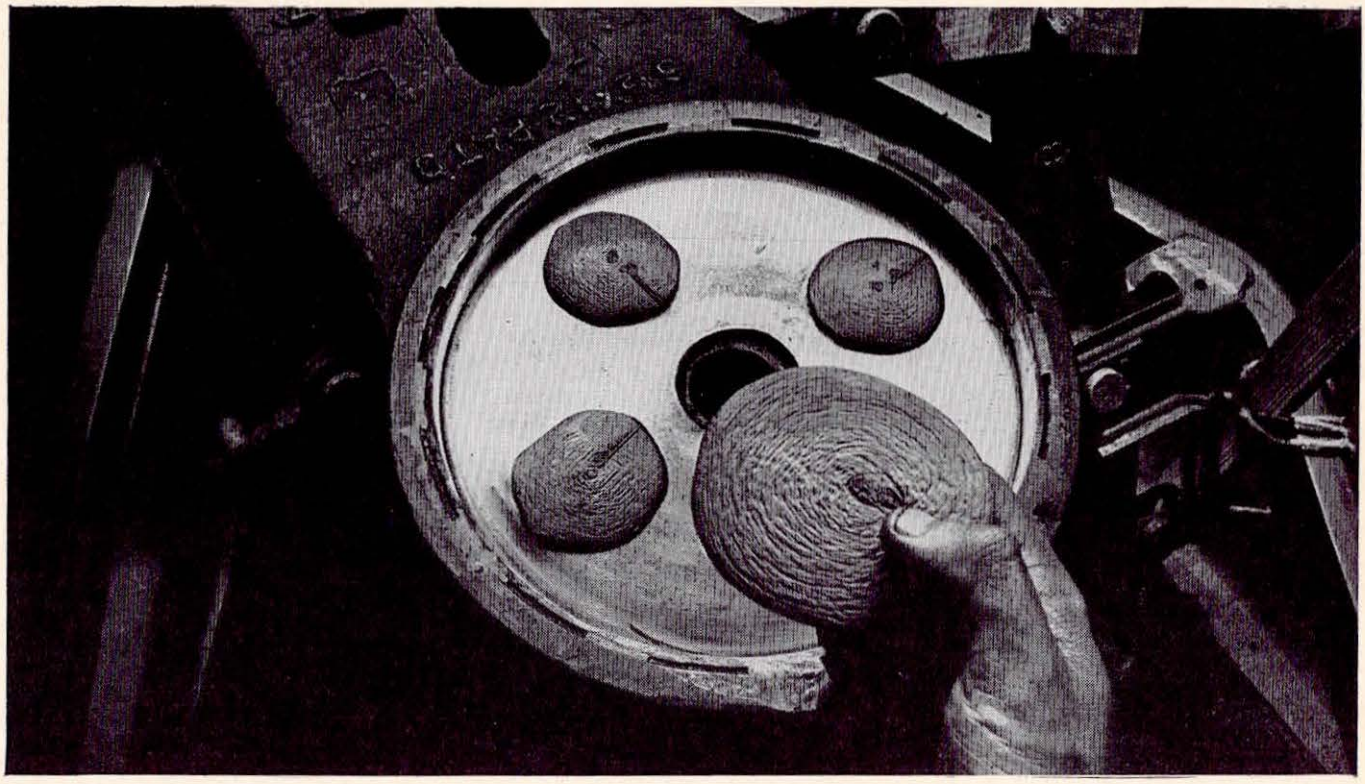
"Such a limitation," continued the House Appropriations Committee, "will enable the Committee to consider the relative priority of urban mass transportation grants."

The limitation does not close the door to additional obligational authority in fiscal 1971.

The present legislation represents the Administration's alternative to a transit trust fund (RA, Nov. 3, 1969).

—**Reid Beddow**

They may look like burnt pancakes, but the Soo Line serves four on every centerplate.



What do the Soo Line people think about Shell's Centerplate Lubricant discs after trying them on all types of cars for more than a year?

Soo carmen liked them, because they are much cleaner and easier to use than a grease gun. Their foreman liked the discs, because lubrication now gets done so much faster. And the Soo's Chief Mechanical Officer, T. F. "Tom" Kearney, liked them because, "I can now be certain that the men are using them. It's much easier to ask a man to do a clean job than make him do a dirty job."

All of these advantages—on top of the excellent lubrication job the discs have done—have made Shell Centerplate Lubricant discs a stock item for the Soo Line.

How they work.
Four of these one-ounce discs (which Soo carmen call "buckwheats") are placed in each centerplate. Each disc contains a measured amount of molybdenum disulfide within a wax-polymer binder. The centerplate gets a controlled, correct lubrication, with no slopover or squeezeout.

These discs meet all requirements of AAR Interchange Code of Rules, Rule 61D3, as revised in Supplement No. 1, effective August 1, 1969. A six-pound package, about the same size and weight as a six-pack beverage carton, contains enough discs to lubricate 24 centerplates. If you haven't tried Shell's "burnt pancakes" on your centerplates yet, contact your Shell Railroad Representative. For a detailed brochure, write Shell Oil Co., Dept. RO/Y, P. O. Box 1890, Trenton, N.J. 08607.

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Circle 14 on coupon page 87

Watching Washington

REID BEDDOW

FRA COMES UP SHORT

Tucked in among the fine print and eye-straining tables of numbers, this statement gasps for attention:

"While the committee has approved certain increases . . . it is still not satisfied that there is sufficient authority vested in the Federal Railroad Administration to cope with the many problems currently facing the railroads of America."

Thus, the powerful House Appropriations Committee expressed itself last month as it reported to the whole House, successfully moving the adoption of a $7 billion Federal transportation budget for fiscal year 1971, a budget in which expenditure for FRA salaries and programs totals $6,795,000 —or about one one-thousandth of the total transportation budget.

Railroads' miniscule share of the Fiscal 1971 transportation budget once again gives some perspective to the government's attitude toward a balanced transportation system. Just compare what the Federal government proposes to give the railroad industry with the support it intends to give other modes in Fiscal 1971. Here is what President Nixon requested for transportation in his budget message in February:

Fiscal Year 1971 Budget Outlays by Transportation Mode

Mode of transportation	Millions of dollars	Percent of total
Highways	4,588	58
Aviation	1,678	21
Water	1,330	17
Other programs	348	4
Total	7,944	100

The "Other" category contains mass transit grants and, of course, FRA's budget.

Examination of Federal budgets from the fiscal years 1955 to 1970 reveals a similar pattern.

Federal highway outlays went from $636 million in fiscal year 1955 to $4.6 *billion* in fiscal 1970; aviation from $122 million to $1.1 *billion;* water (inland and maritime) from $281 million to $1.3 *billion,* and rails went from $2 million to $21 million.

IS CONGRESS HAVING SECOND THOUGHTS?

To return to the House Appropriations Committee's plaint about the FRA, no criticism of FRA itself was implied. No one familiar with Washington doubts that the research-keen FRA, operating on such slender financial resources, is one of the brighter Federal agencies.

But the Committee's lament provides more evidence that Washington finally eyes the railroads with more than chronic boredom. And it's questioning the wisdom of year-after-year appropriation of vast sums for other modes, while rails, which carry 40% of intercity freight, receive .001% of government transportation support.

Caracas to start building Metro

Groundbreaking for a rapid transit system in Caracas, Venezuela, postponed for two years, is now scheduled for late this year.

Metro's initial line will be underground, run east to west and cover a distance of 13 miles. The line will have 22 stations and is estimated to cost anywhere from $266 to $330 million, including rolling stock and equipment. Additional lines are already under study.

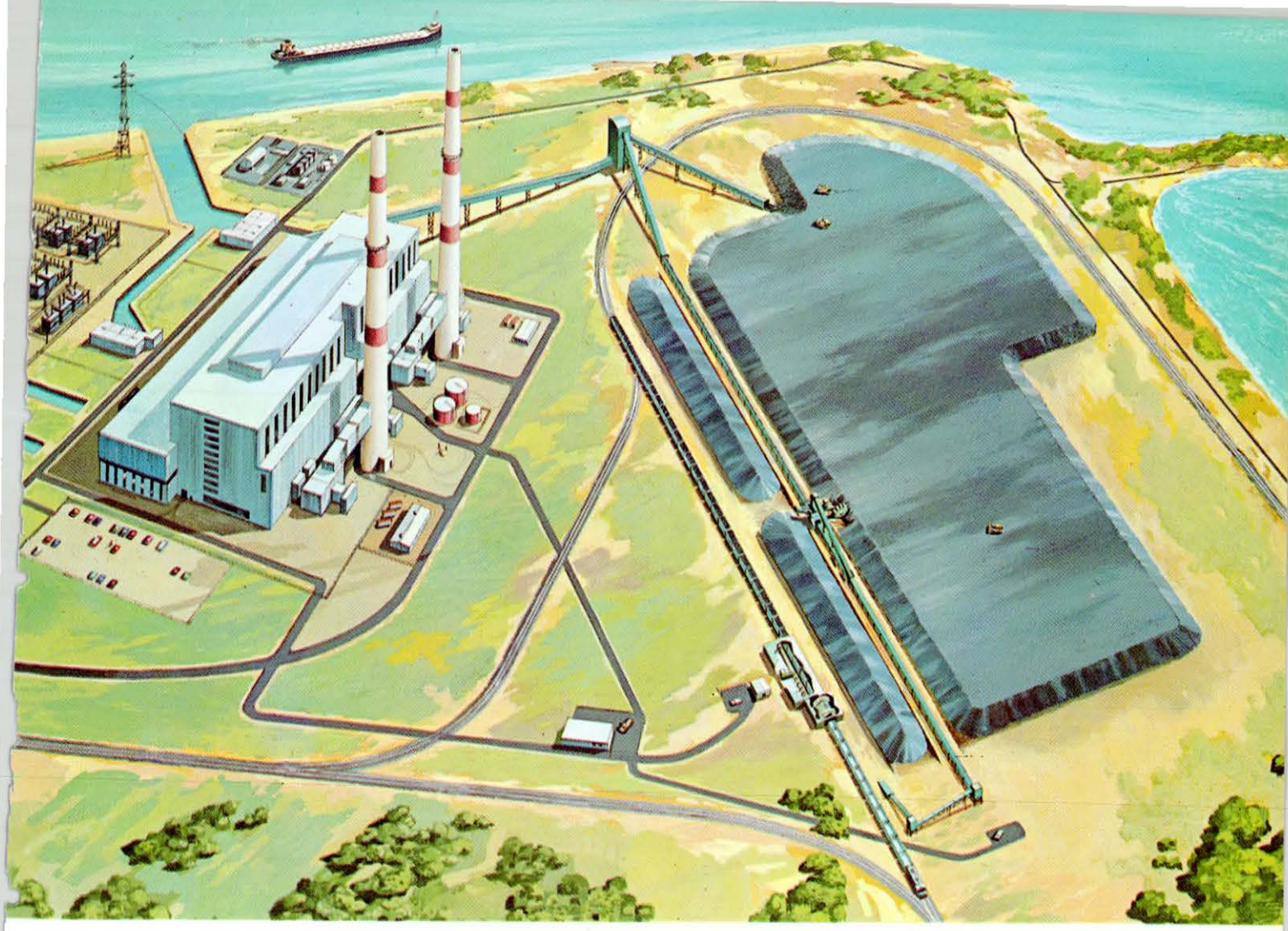
Construction of the Metro is under the direction of the Oficina Ministerial del Transporte (OMT) of the Ministry of Public Works. Advisors to the Ministry are two U.S. consulting firms, Parsons, Brinckerhoff, Quade & Douglas and Alan M. Vorhees & Associates.

The OMT itself is a departure from the usual practice of developing countries to contract with manufacturing consortiums or consulting firms for a complete project. Only after the transit needs of Caracas were measured by OMT were the services of outside agencies ordered for development of detailed plans, computer studies and procurement of equipment.

N.Y. borrows a cool idea from aerospace

The New York City Transit Authority presently has 610 air-conditioned cars in operation (out of a fleet of 7,000) and 240 more on order. But none of these can operate on NYCTA's busy IRT line, whose tunnels are smaller than others in the system and whose cars are therefore narrower—with the result the presently available air-conditioning equipment cannot be fitted into them without taking up passenger space. The result is that while riders of the IND and BMT lines have at least one chance in 10 of getting a cool ride, IRT passengers are left to swelter.

Btu all that will change, says Dr. William Ronan, chairman of the Metropolitan Transportation Authority. He says NYCTA is negotiating a contract with the Stratos Division of the Fairchild Hiller Co. to equip two IRT cars with air-conditioning equipment that has been developed for airplanes and spacecraft. If all goes well, IRT riders can look for relief. It is NYCTA's present plan to equip all new cars with air-conditioning, according to MTA's chairman.



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In the plant, a multi-level conveyor network provides alternate flow paths to the 28 silos serving the four generating units. Only one unit will operate in 1970. But by 1973, the completed plant will use eight million tons of coal yearly.

For help on any new or existing materials-handling system, contact McDowell Wellman Engineering Company, 113 St. Clair Ave., N. E., Cleveland, Ohio 44114.

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What he was getting us into, among other things, was an ever-growing business of mass urban and suburban transportation. And in that business, the wheel is only a beginning. It must be hitched to a system, developed through experience and imagination. Do people have to ride on the wheels? Maybe they could be suspended from them. Do the wheels have to be pulled?

Maybe linear induction propulsion would do it better. Or suppose we simply scrap the wheel entirely... and shoot people-carrying capsules through a vacuum tube system from place to place. These are more than vague off-in-the-future ideas. They're the kinds of things that are being considered today at Pullman-Standard. We're not just the car-builders with the most experience in moving people... we're the carbuilders with resources to develop complete systems and totally new concepts in mass transit. For the latest in transit cars... or the first in people-moving ideas... call us.

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You'll benefit in a host of ways from the opening of the new Fort Worth headquarters. Through faster deliveries and higher levels of quality control, of course. But, best of all, these increased physical facilities will enable our rapidly expanding engineering and technical support team to continue to provide you with the most advanced and efficient cushioning equipment possible.

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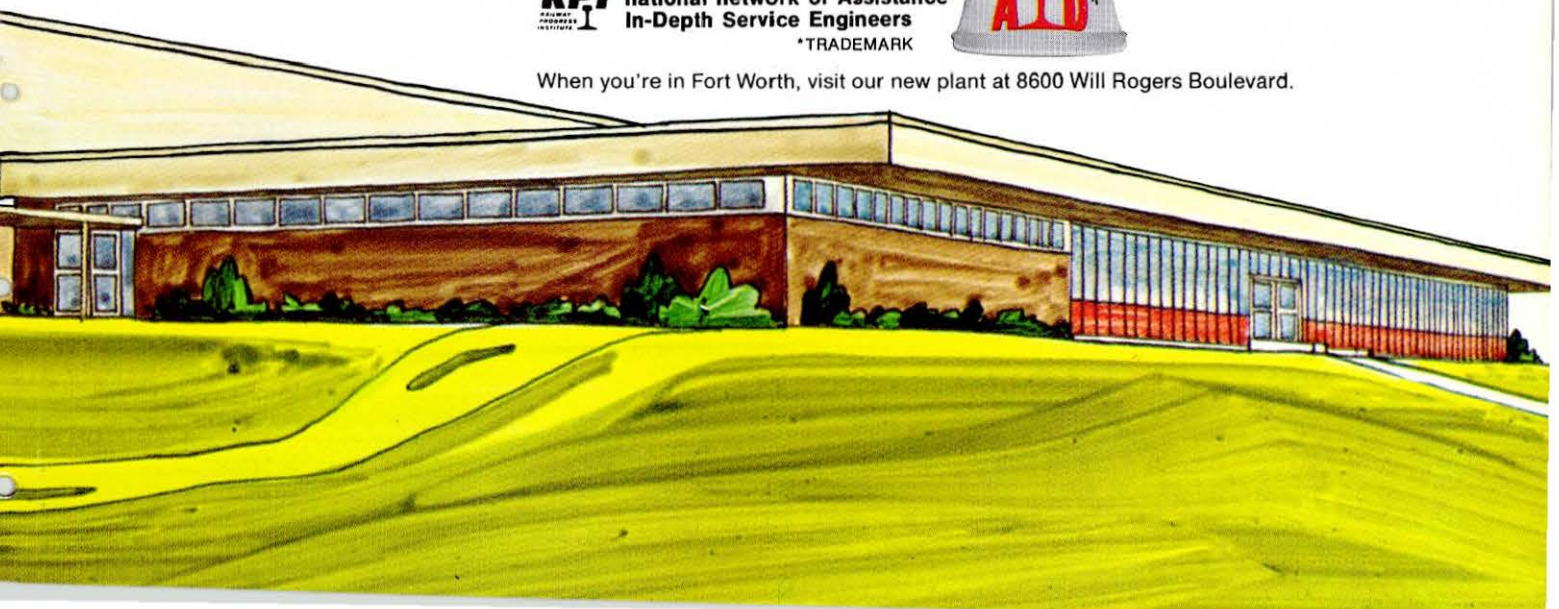

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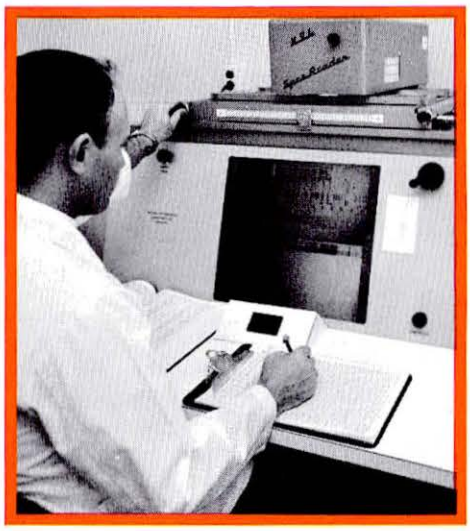

AMOCO Super Diesel Lubricating Oil performance is closely monitored by spectrograph at Santa Fe's research laboratory in Topeka, Kansas. Rapid spectro-analysis determines lubricant wear characteristics and operating condition.

To provide faster, more reliable service, progressive railroads are employing new methods of operation. Sophisticated techniques that depend on rolling stock operating with minimum downtime.

Techniques like the Santa Fe's precision schedule operation between Rustler Springs, Texas, and the Port of Galveston. Transporting hot liquid sulfur over 930 miles in unit trains on a continuous turn-around basis.

On-time delivery and cargo protection are vital to this type of service. There's no room for equipment failure where advanced concepts such as precision scheduling and programmed unit trains are involved.

That's why many of Santa Fe's heavy-duty locomotives operate with AMOCO® Super Diesel Lubricating Oil. A product that's proved its dependability in more than 8,000 unit months of closely monitored operation. In Santa Fe diesels that include the latest high-output engines.

A high-dispersant lubricant, AMOCO® Super Diesel Lubricating Oil helps provide longer filter life and cleaner running engines as well as improved performance in the ring belt area.

It also offers high alkalinity that reduces wear. Oxidation stability for extended use.

AMOCO® Super Diesel Lubricating Oil. A service-proven, fully-treated, low-ash lubricant for progressive railroads.

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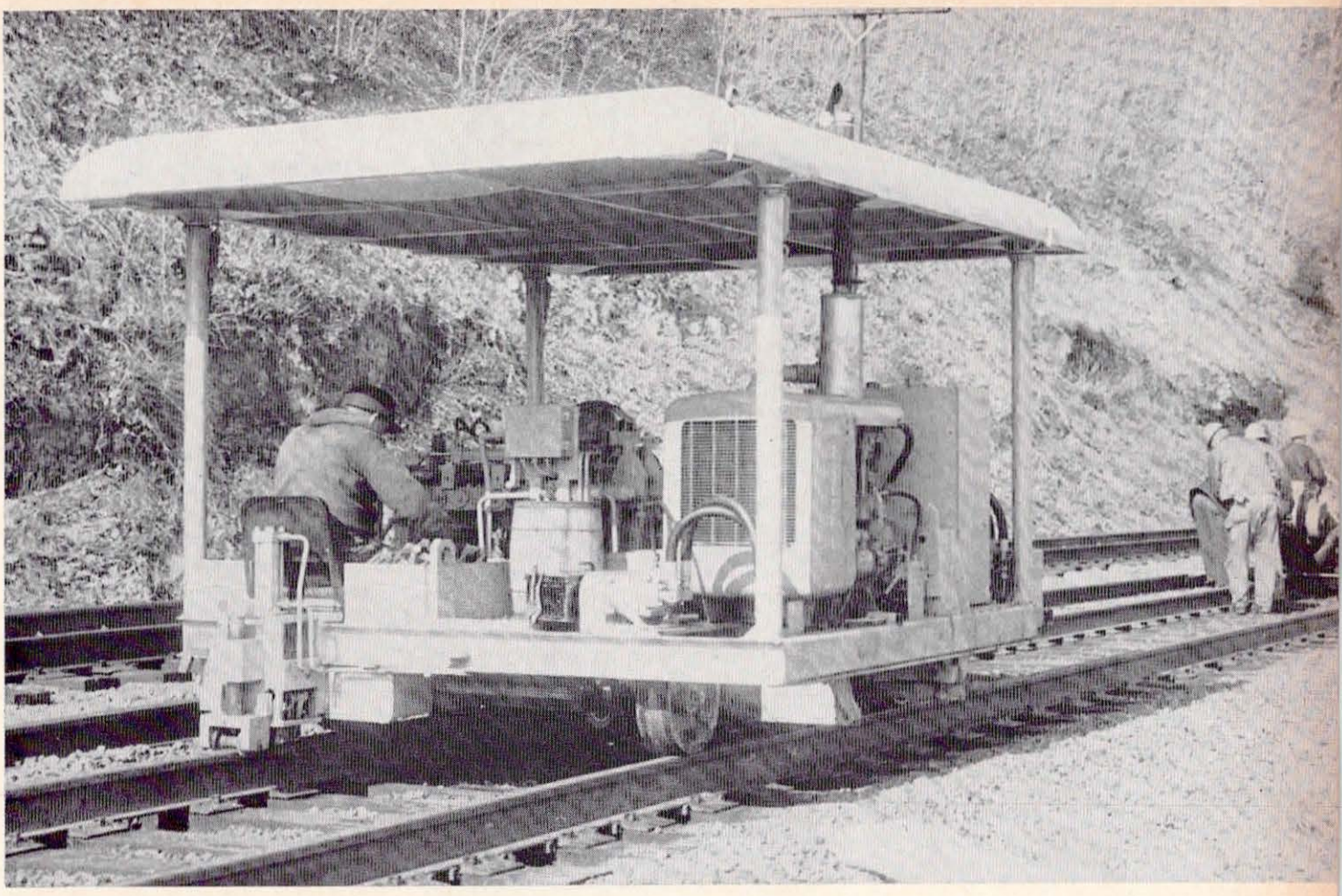


THIS RAIL GANG SPIKER sets and drives spikes at the rate of eight ties a minute. Spike-setter men are not needed.

Welded rail goes in fast on MoPac

New hydraulic spiking machine sets and drives spikes. It also adjusts rail lengths by stretching when they are laid in cold weather.

When laying continuous welded rail, two important operations are spiking and adjusting the lengths of the long welded strings for the temperature at the time of laying. Both operations must be carried out fast enough so as not to impede over-all production of the gang.

● **New spiking machine.** On many railroads, spiking requires from two to six men, depending upon the production goals of the rail gang, to set spikes by hand before they are driven down by a machine. A new machine has been developed that eliminates the spike-setter men because it sets as well as drives the spikes.

The new machine, known as the Rail Gang Spiker, is manufactured by Nordberg Manufacturing Co. Observed recently while being demonstrated on the Missouri Pacific, it was supplementing the work of a Nordberg mechanical spike hammer.

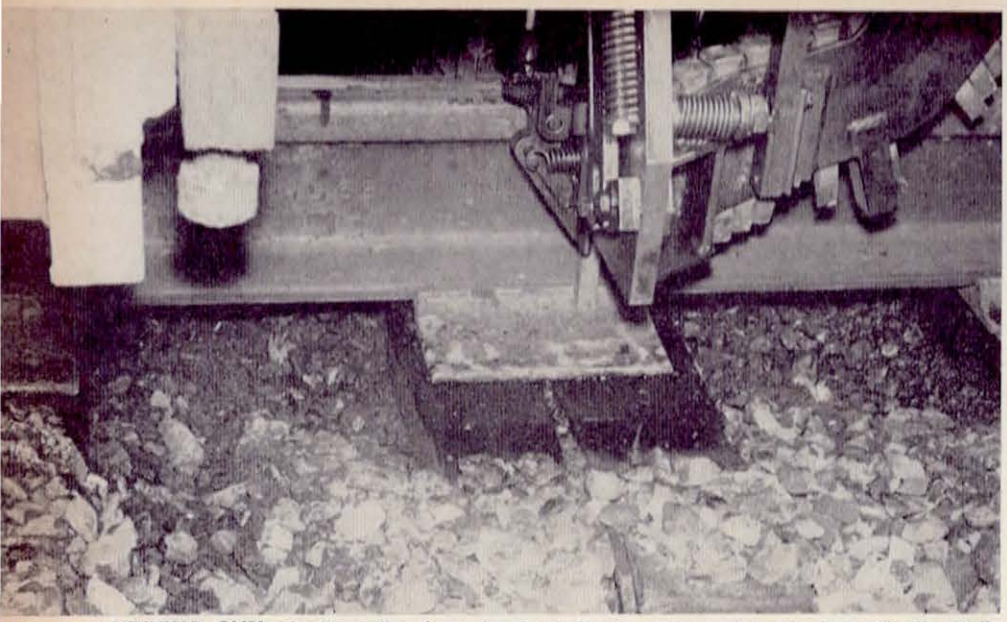
The driving guns of the spiker can be adjusted for driving two rail spikes either singly or simultaneously. The guns can also be adjusted for driving tie-plate hold-down spikes. The Rail Gang Spiker is operated by an operator and a helper, the latter keeping two hoppers and two feeder trays, one each for each side of the rail, supplied with spikes. When clocked, the machine was consistently driving two rail spikes in eight or more ties per minute.

The Spiker is hydraulically propelled and operated by electric push-button controls. It has front and rear hydraulically-operated rail clamps for holding the machine firmly to the rails during the driving operation. An outstanding feature is a carriage that holds the driving guns on each side of the rail and which can be hydraulically positioned to place the guns directly over the holes in the tie plates.

● **How it works.** The operators' helper obtains his supply of spikes from kegs distributed in advance of the rail gang. He places spikes into inclined feeder trays on the machine with their heads turned in the right direction for driving. The spikes flow down to the driving-gun assemblies.

The operator moves the machine over a tie and positions the driving-gun carriage for placing the spikes directly over the holes in the tie plates. Using push-buttons, he actuates the mechanism that drives the spike. He then moves to the next tie and repeats the operations.

Ordinarily, the Missouri Pacific rail



DRIVING GUN plucks spike from inclined feeder tray and holds it vertically while it is being driven. Then, assembly retracts and another spike is snapped into place.

gang employs two men with a push car for distributing the spikes, four men to gauge-spike every fifth tie, using a Nordberg mechanical spike hammer, and three more Nordberg mechanical spike hammers each with an operator and helper who sets spikes ahead of the machine. This totals 12 men with four machines and a push car.

While demonstrating Nordberg's new Rail Gang Spiker, the unit was worked behind the gauge-spiking operation. The gauge-spiking men continued to use the mechanical spike hammer, and were followed by the Rail Gang Spiker. Following this unit, one man distributed spikes from a push car, two men set the spikes and one man used another mechanical spike hammer. This totals 10 men, 3 machines and a push car, a net saving of two men.

From the performance of the Rail Gang Spiker with this gang, it is conceivable that two such machines would be more than enough to keep up with the progress of the rail gang, even if six strings were laid in a day. Using two machines and including the gauge spikers, eight men and three machines would have been required for the spiking.

Commenting on the work of the Rail Gang Spiker, W. E. Laird, MoPac's engineer of track, stated that the machine does an excellent job of spiking, uses the right amount of force and avoids overdriving.

● **Adjusting rail lengths.** The method used by Missouri Pacific for adjusting the length of the welded rail strings (1,440 feet long) when laid while the rail temperature ranges below 75 deg F and above 15 deg F, proved to be interesting.

RAIL STRETCHING—Joint gap is closed by pulling the rail ends together.

E. T. Franzen, Missouri Pacific's Chief engineer, has been concerned about buckling of track in hot weather brought about at locations where the rail was laid in winter months at low temperatures. The use of a rail heater was initially tried out in providing stress control. Although this method accomplished the desired results, serious delays to the rail-laying operation were experienced and an occasional crosstie was damaged by fire from the rail heater.

Franzen then directed that tests be made to stress the long rails mechanically and tests were conducted in 1969 by J. T. Hunter, engineer of equipment. From these tests, procedures were developed that enabled full spiking prior to mechanical stretching of the rail and resulted in a minimum of delays in laying welded rail. The Simplex Rail Expander was utilized to mechanically stretch the rail and arrive at a desired length selected to be equivalent to continuous welded rail free and without restraint at a temperature of 85 deg. F.

The road has computed and prepared tables showing the expansion compensation required. These provide the incremental amount in inches a string must be increased in length by stretching or heating when the temperature is below 75 deg F. Each rail gang is provided with a set of shims, made from the same rail section as being laid, in lengths of ½ inch, 1 inch, 2 inches, 4 inches and 5 inches.

The procedure used when stretching rail, as explained by Hunter, is first to box-anchor every other tie of the middle 10-rail lengths of the 37-rail-length strings.

The middle sections serve as anchorage for holding the strings while the end 13.5 rail lengths are pulled and stretched to close the predetermined rail gaps at the joints. Then, joint bars are applied and the end portions anchored.

● **Work procedure.** At the start of laying, the head end of the rail gang removes the old rail and prepares the track to receive the new rail string. The rail anchors are removed for 13.5 rail lengths from the string laid the previous day and that rail is allowed to adjust to the existing temperature. Using a rail thermometer, the foreman obtains the rail temperature and consults the expansion compensation tables to determine the shim thickness for the joint gap.

Joint bars are applied to the existing rail string and the shims are inserted. The new string is set on the tie plates with its end butting against the shims.

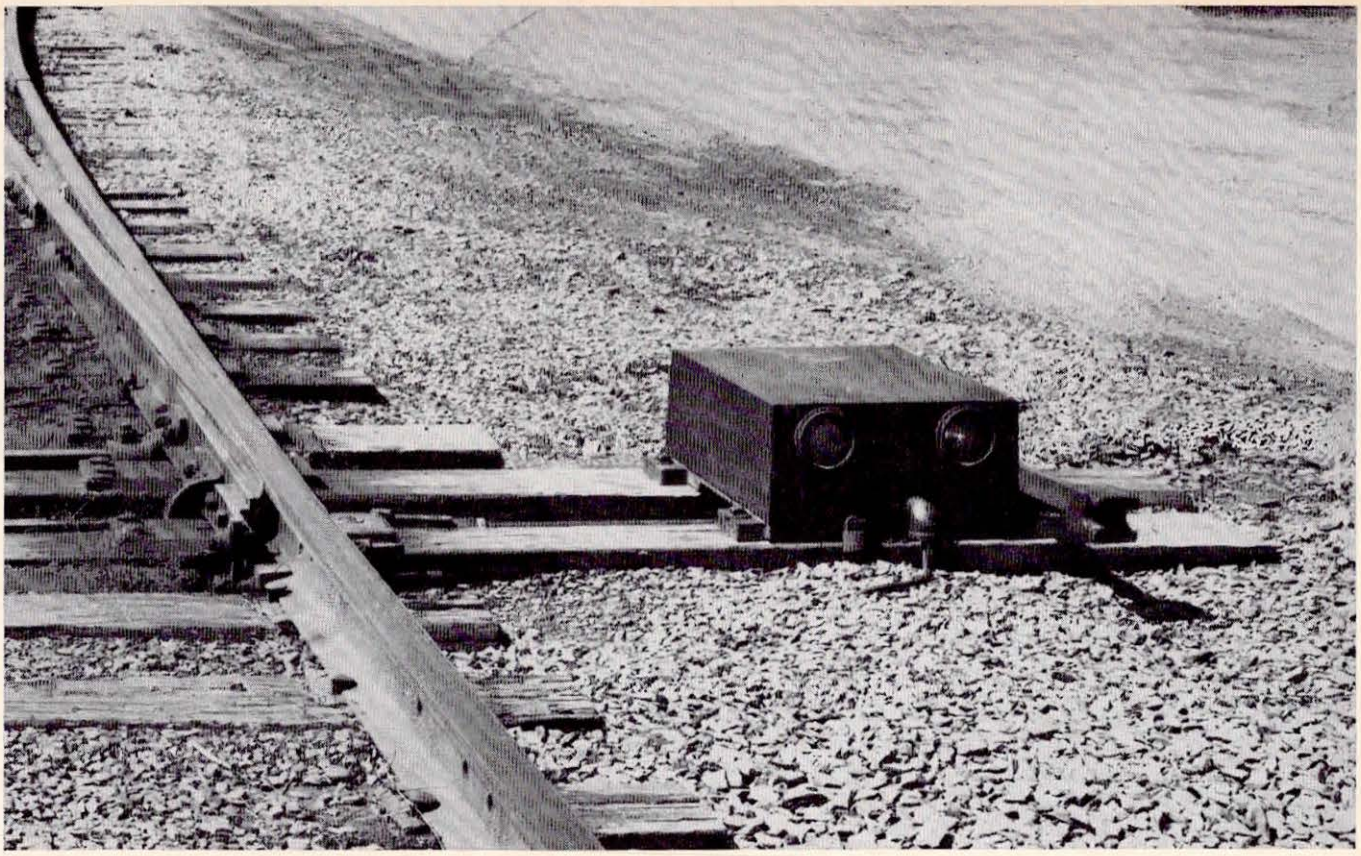
This permits gauge spikers and other spiking operations to progress for the length of the new string.

The middle 10 rail lengths of the newly laid string is box-anchored. The Rail Expander is wedged to the rail ends each side of the joint gap. As soon as anchoring of the middle rails has been completed, the shims are removed and the rail ends are pulled to close the gap.

Bolts are then inserted and tightened, after which every tie for the first five rails from the joint is box-anchored and every other tie after that until the middle 10 rails are reached. The 13.5 rail lengths at the far end of the new string are left unanchored for making the next joint.

At this point, the Rail Expander is removed, taken to the next joint and the process is repeated.

As a result of the road's experience over a year's period, the MoPac has adopted rail stretching as standard practice with all rail gangs. ■



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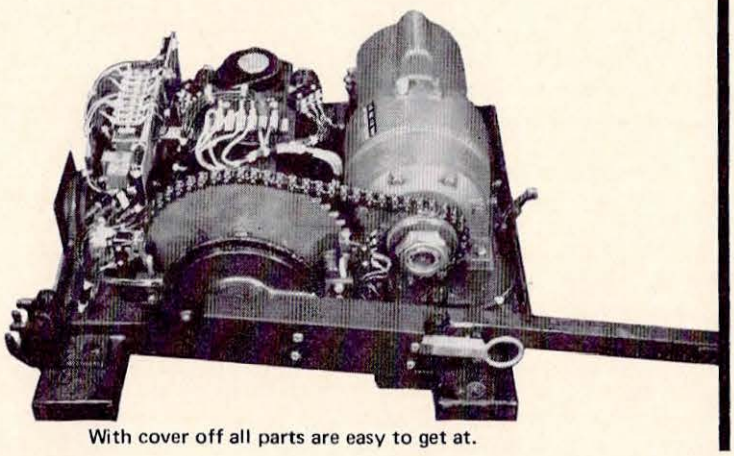

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HOUSING UNITS are designed for mounting on flatcars, they may also be put on highway wheels or permanent foundations.

Modern housing for CN work crews

Old-style camp cars are being replaced with 1,000 new units built to serve differing needs of a variety of M/W groups.

Having a home away from home is a phrase that has taken on new meaning for hundreds of Canadian National employees. These workers find themselves moving out of converted passenger and freight cars into spanking new housing units especially designed and built with an eye to the comfort of their occupants.

This comes about as the result of a long-range program the road has undertaken to replace the converted facilities with a line of new units designed to meet the varied needs of the road's many types of work crews. Whether a particular crew has 2 or 125 or more men its needs can be met by putting together a combination of units selected from about fifteen different designs.

● **"Long overdue."** "In providing these housing facilities we are doing something that is long overdue," says R. J. Hansen, the CN's chief engineer. "I am in favor of doing anything within reason to improve living conditions for our men. If we don't offer decent accommodations for employees we increase our problems of hiring and holding them, particularly in the remote parts of the system."

Last year was the first year of a five-year program which contemplates acquisition of 1,000 of the new housing units by 1973, or 200 per year. However, because of the urgent need for the new facilities, a two-year segment of the program, or 400 units, was telescoped into the first year.

A CN spokesman explained why the facilities are needed. Many of the road's lines, he said, serve remote, sparsely populated areas where public housing and eating facilities are extremely scarce. The result is that the company must rely heavily on its own equipment for housing and feeding its men.

At the start of the new program CN had a fleet of about 2,800 housing units, consisting mostly of converted passenger and box cars. But officers of the road were becoming increasingly dissatisfied with the existing housing units. Many were obsolete and in need of replacement. Also, they lacked flexibility. So the question of what to do about the situation became increasingly critical. In 1969, Hansen directed George W. Vogen, project development engineer, to determine the magnitude of the problem and to recommend a course of action.

● **Development contract.** After a year's study Vogen recommended that the company seek alternative means of housing its employees who work away from home. In June 1968, the road decided to implement this recommendation and entered into a development contract with ATCO Eastern, Ltd. ATCO manufactures a wide variety of commercial and industrial buildings. It also manufactures mobile homes and has a subsidiary that builds homes by conventional on-site methods. Craig Kirby was appointed project coordinator for the railroad, while ATCO's end was headed by A. Ross Liddell, manager railway equipment.

Following the completion of specifications that came out of the development contract, authority was received from management to embark on the program to acquire 1,000 of the units in a five-year period. A contract for producing the first 400 was awarded to ATCO on a competitive-bid basis.

The 1,000 units are to be placed in the hands of the road's permanent,

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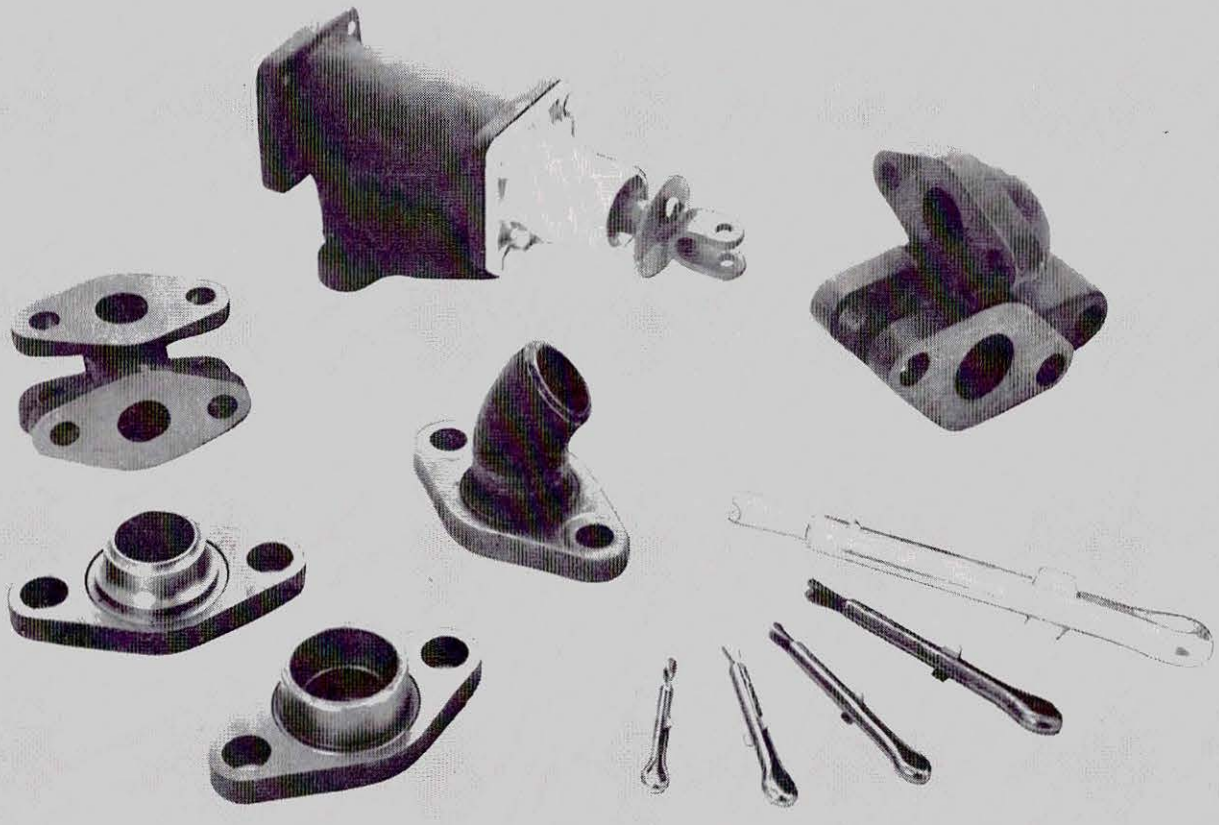

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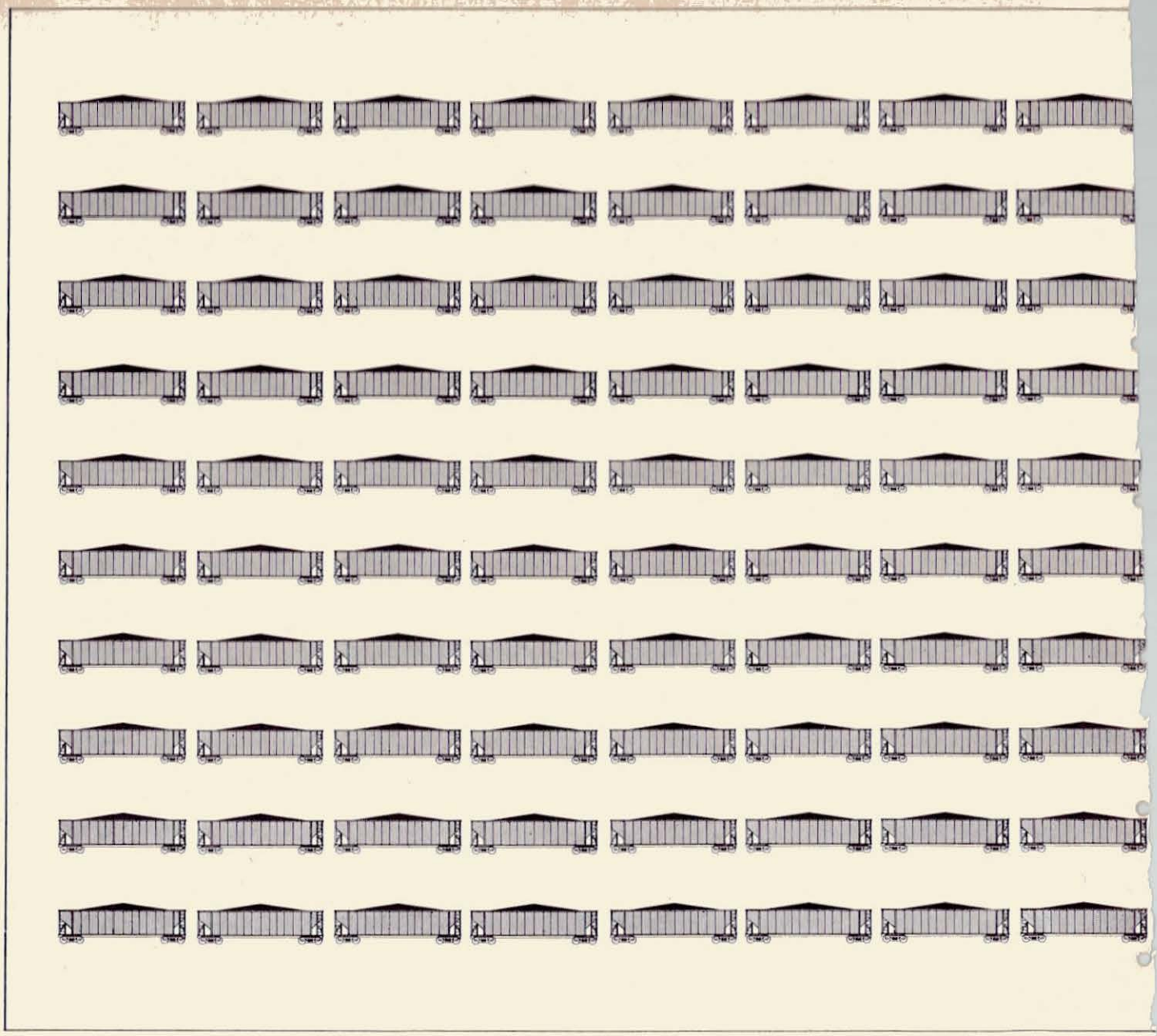
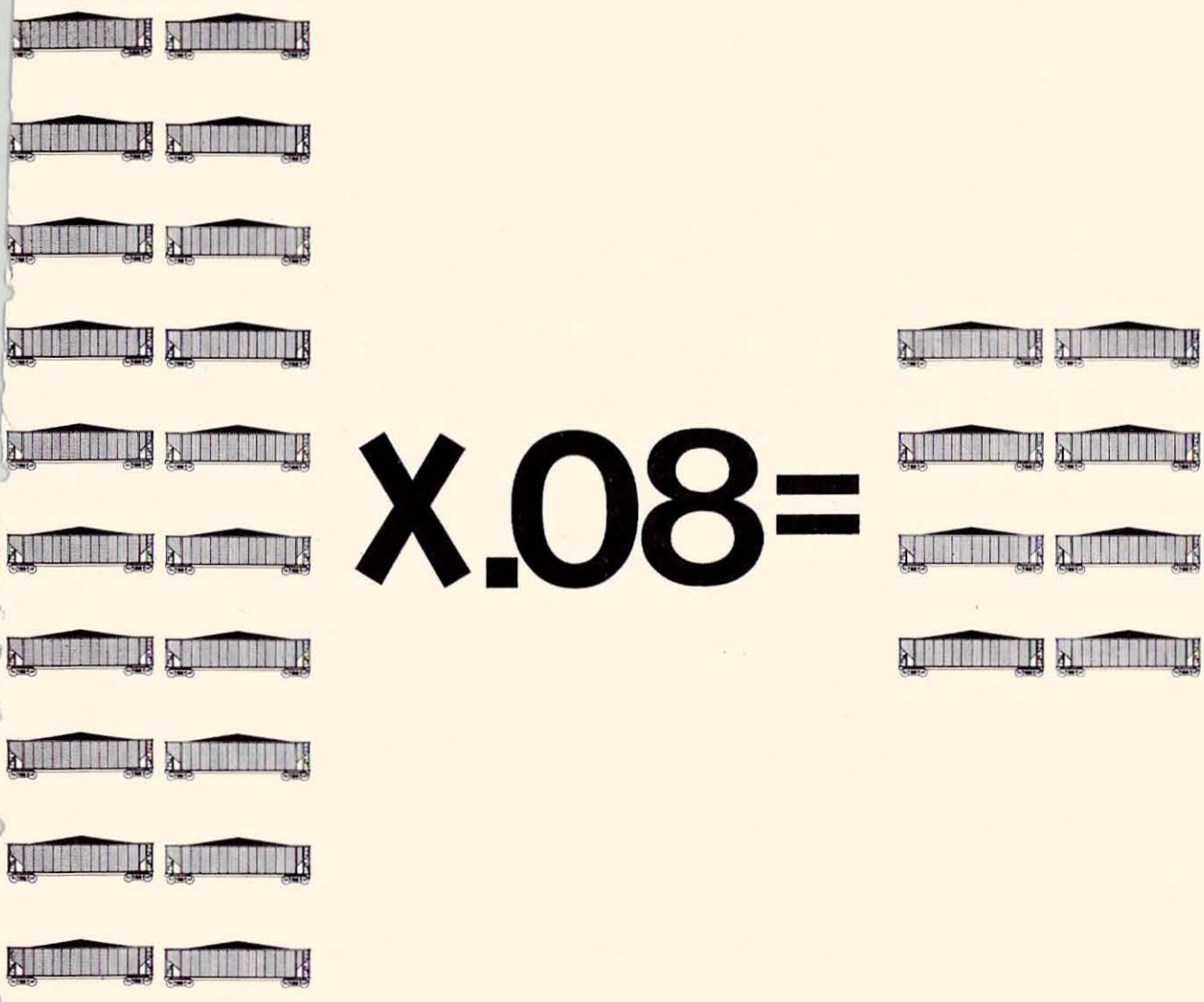


New math:
If one 100-ton aluminum coal car carries eight extra tons, how many additional carfuls could your aluminum-bodied unit train carry?

Multiply the number of cars by .08.



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Aluminum coal cars deliver more payload profit because they carry more lading. For instance, you are a shipper of coal weighing an average of 45 lb per cu ft, and you're negotiating a freight rate on a carload basis. 100-ton aluminum cars weighing 263,000 lb gross have a rated capacity of 4,800 cu ft. Empty aluminum cars weigh 47,000 lb and carry 108 tons. A steel car weighs 63,000 lb and carries only 4,444 cu ft or 100 tons.

That means you would have approximately eight percent more capacity with aluminum cars, allowing you to haul the equivalent of eight carfuls more coal in a 100-car unit train. You could make fewer trips per year with the same number of cars. Or reduce the number of cars and make the same number of trips. Any way you do it, you lower operating expenses.

Just as important, aluminum has a much higher impact strength. Stands up better to racking strains, rotary dumping and the worst sulphur bearing coals. That's why there are Alcoa aluminum-bodied cars in coal service for 24 years still going strong.

To find out more about aluminum-bodied cars, call on the people who know aluminum best. Contact your local Alcoa sales office.

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KITCHEN-DINER UNIT has triple sink, propane range, refrigerator and large cabinets.

year-around track, bridge and building and signaling gangs. As the new units come into service the old cars that are considered obsolete will be retired. Those rated serviceable will be used by seasonal and extra gangs.

● **Housing needs shrinking.** Due to changes in work practices, including increased use of machinery, the railroad is expecting that the need for employee housing will decline as the years go by, with the result that the fleet of housing units will undergo a substantial shrinkage in coming years.

Although the new housing units provide for a variety of interior arrangements and appointments, depending on their function, all of them are the same size—10 feet by 34 feet. They are designed to be mounted on standard 40-foot flat cars, although they can be off-loaded onto wheels for highway travel or they can be placed on timber foundations for stationary use.

● **Pilot unit tested.** The development contract with ATCO called for building 16 pilot units. The first was subjected to simulated humping and switching conditions at the road's Montreal test laboratory. These included speeds up to 10 mph and forces up to 10 G's in the longitudinal line of travel. Coupler forces exceeding 750,000 pounds were said to result in no damage to the unit.

The test unit, now fitted with electronic equipment to record the loadings encountered, was then subjected to an extended, uncontrolled and unsupervised running test. Results of this test, too, were said to be completely satisfactory.

On completion of the tests the remainder of the 16 prototype units were built by ATCO and placed in actual service in the Newfoundland area of the Atlantic region in September 1969. These units, have performed satisfactorily and interviews with the employee occupants indicate a high degree of satisfaction, the railroad reports.

● **The different types.** The 400 units ordered so far consist of varying numbers of nine different types. These types are:

No. 1—Kitchen-diner; No. 2—Six-man sleeping unit, (three double bedrooms); No. 3—Five-man sleeping unit (two double rooms and one single room); No. 4—Kitchen-diner with cook's quarters. (Because its length of 42½ feet is too long to permit it to be mounted on a standard 40-ft flatcar, this unit is already considered obsolete due to a shortage of 46-foot flat cars for accommodating it); No. 5—Quarters for cook and foreman, with a third room expected to be used mostly by assistant foreman. (To meet health codes a washroom is provided for the private use of the cook); No. 5a—This is a modification of No. 5. (It has the cook's quarters at one end and an office and room for one man at the other. The center room becomes a sleeping room for two men, or a larger office); No. 6—Recreation, wash car. (Room with card tables and lounge chairs at one end, wash room, shower and toilet facilities at the other); No. 7—Basically the same as No. 8, except that it has a standard porcelain-type toilet instead of the electric-chemical type used in other units. (No. 7 is intended for semi-permanent use in wayside applications where it would be mounted on a timber foundation); No. 8—Standard four-man self-contained unit (two two-man bedrooms; cooking and eating facilities; and washroom with showers, airline-type toilet, sink).

Now in process of development is a self-contained unit designed for occupancy by two men.

● **Flexibility the aim.** The purpose behind the provision of these different units is to achieve full flexibility in meeting housing needs of gangs of different sizes and types ranging up to 125 or more men. They can be put together in any combination needed to satisfy requirements of particular gangs.

Kirby explains that for a typical gang consisting of 10 to 15 men the housing provided would consist of a No. 1 unit, a No. 2 unit, a No. 5 or 5a unit and a No. 6 unit. If the number of men in the gang is at the high end of this range, another sleeping unit would be provided.

For each gang consist, the railroad will provide a 15-kw generator set housed in one end of a box-tool car. The other end of the car will be used for tool storage and as an area where the men can remove soiled outer clothing before going into their regular quarters. Unit No. 9 will be provided with a small generator to make it fully self-contained.

ATCO offers six additional designs. These are specialized units intended for use by larger gangs. They include a cooler-freezer-storage unit, a kitchen unit, a 30-man diner, a 50-man wash car, a 100-man wash car, and a 30-man recreation car unit. Still another is a tool-generator unit suitable for off-loading at the work site.

● **Construction features.** Basically the housing units are of wood-frame construction with walls of plywood glued and nailed to wood studding. Fiberglass insulation is used in floors, roofs and walls. Plastic vapor barriers are installed on the warm sides of walls and roofs before application of interior finish. Exteriors are plywood sheathed, glued and stapled to the wall studding, then covered with white prepainted aluminum with baked-on finish. Interior finish is prefinished mahogany plywood in the living quarters.

Ceilings are of Upson board and floor coverings are standard-gauge linoleum. Windows are the double-sliding type complete with screens and storm sash.

Wall and ceiling lights of the standard household type are provided. At his bed each man has a reading light and also an outlet for operating a radio or electric razor.

Heating is by household-type forced air, thermostatically controlled oil-fired furnaces. All furnaces are equipped to provide summer circulation of air. In most cases heat is provided by an oil-fired furnace, although in Unit No. 8 propane gas is used for heating as well as for cooking and heating water. All kitchens use propane gas for cooking. Water systems are pressurized, with built-in water storage. Electric power is provided either from commercial sources or a generator car. Toilets are of the Monomatic electrically operated type. ■

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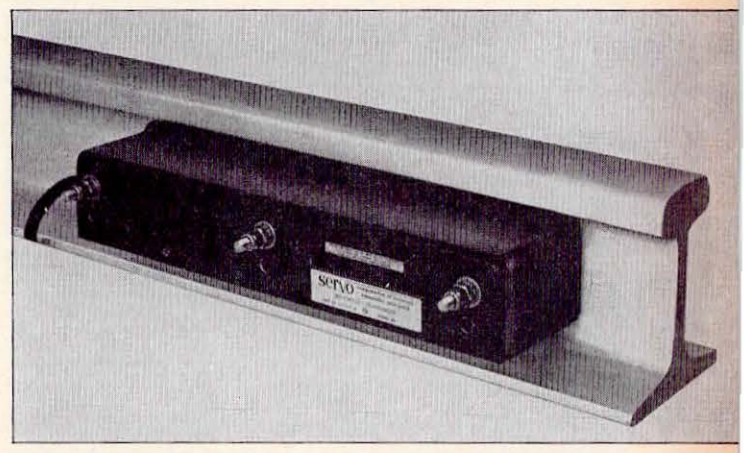
Would you like to know more about these versatile units, including technical description, specifications and application notes? Just ask for Tech Data Publication 2016.



SERVOPOLE® Rail-Mounted Magnetic Sensing Transducer is a dual-segment unit for use where directional information is required. Another model, SERVOTRIP®, is a single-segment transducer for applications where direction sensing is not required. The transducers have no moving parts—all internal components are encapsulated and mounted in a rugged fiberglass-reinforced housing. A complete selection of associated control units is also available from Servo, including: timers, directional sensors and analyzers, speed selectors, relays, etc.

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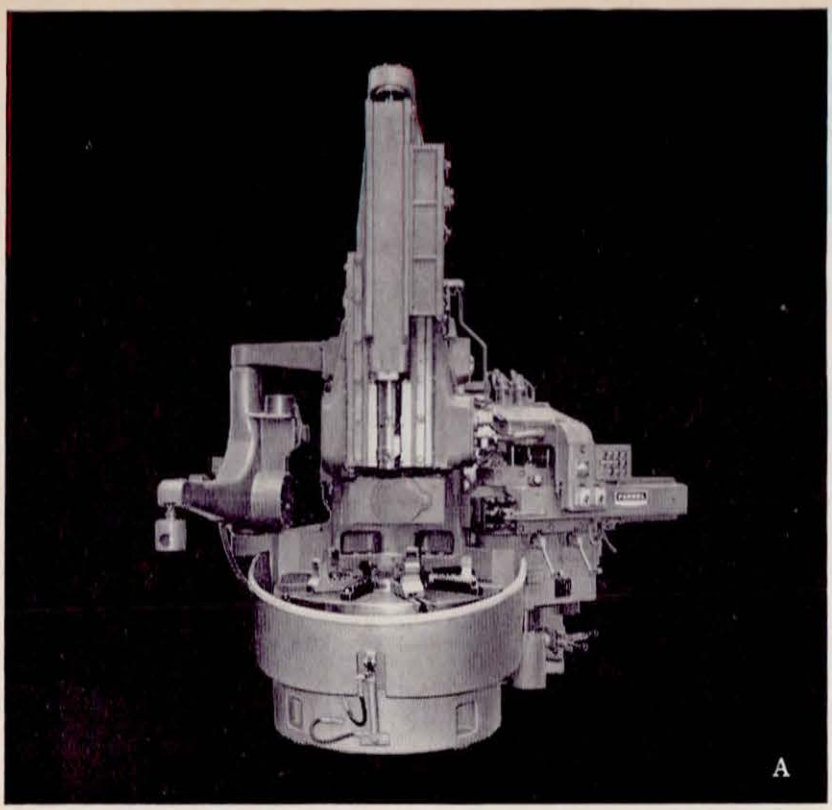

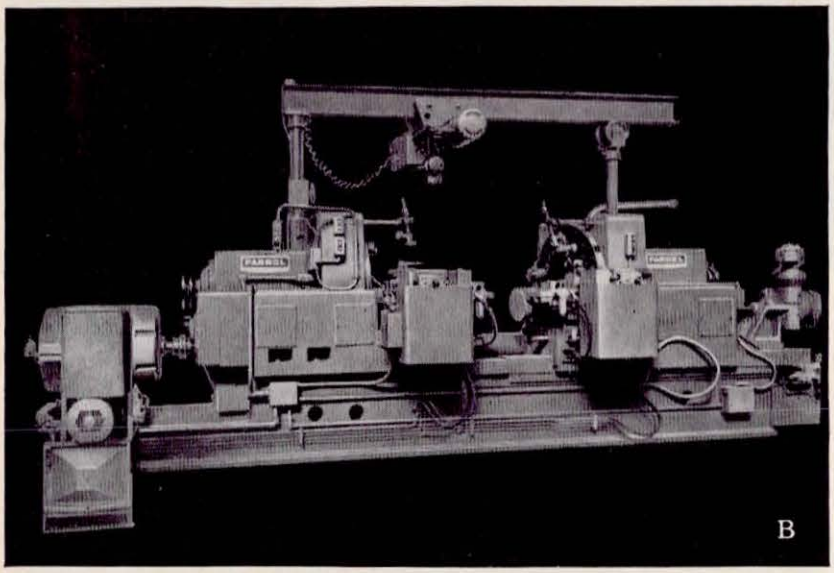

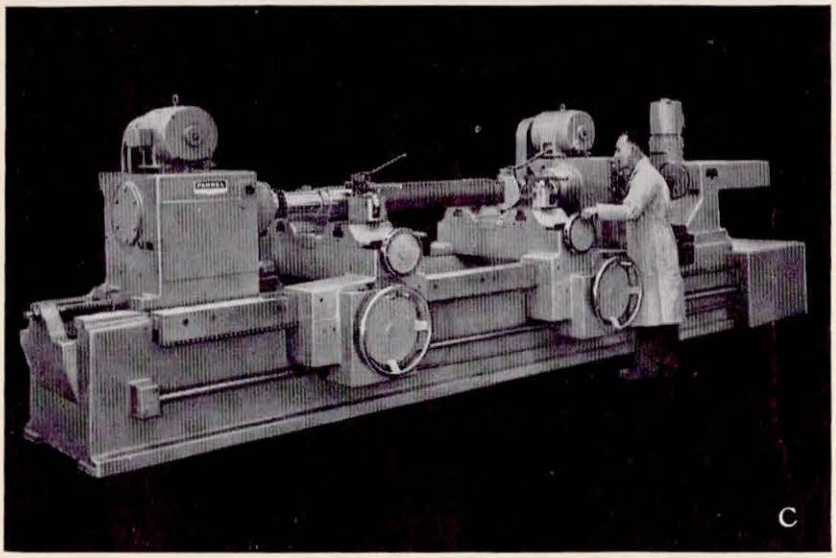

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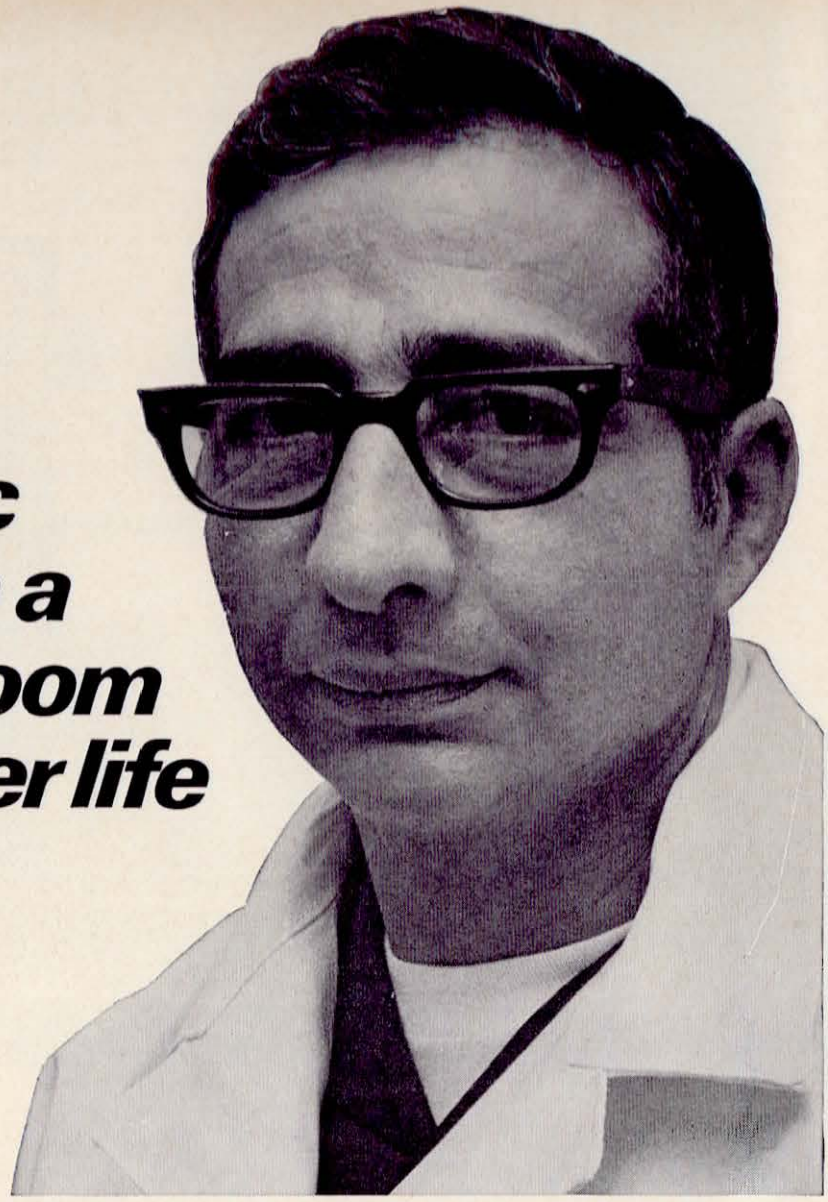
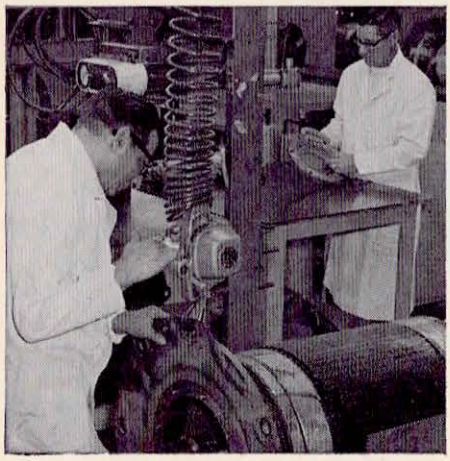
69251

"Doctor" Vic operates in a dust-free room to put longer life into your traction motors.





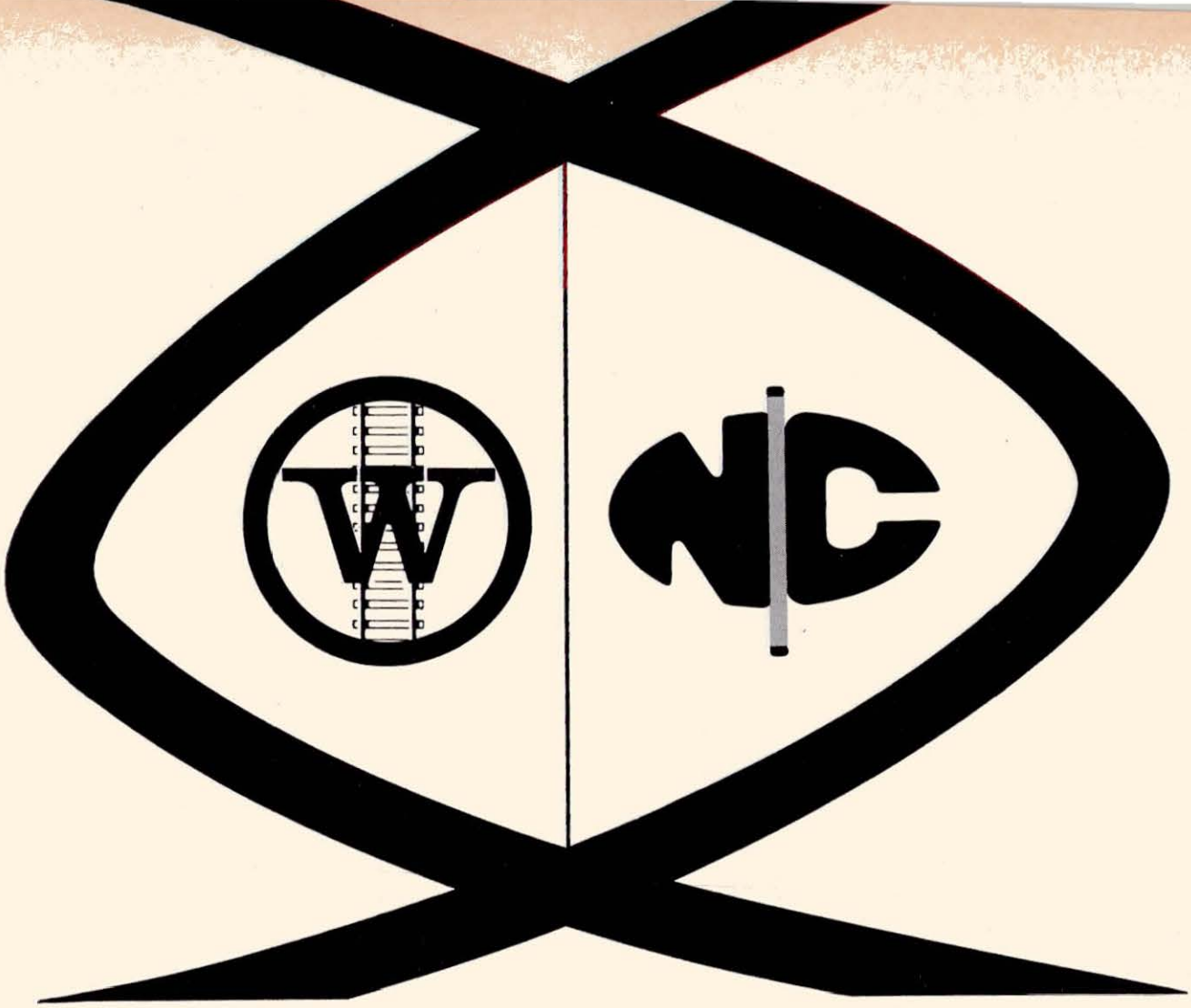
National takes utmost care in every detail in the repairing of traction motors and generators to assure you longer life and trouble-free service. For example: Motors are assembled in a clean room—air-conditioned and electrostatically filtered to insure immaculate cleanliness. Here, 12-year veteran, Victor Terrible, and his team employ special tools and handling equipment to make sure that bearings are accurately aligned in housings and gauged for proper tolerances. All parts are thoroughly cleaned and inspected. Grease is accurately weighed for each part. Spacers, seals, slingers are precisely fitted.

Our close attention to details, years of experience and unbeatable facilities spell the big difference between the values we give you and those which just "get by." You get a lot more than copper in a National job. For service, call 614/488-1151. National Electric Coil, Columbus, Ohio 43216.

DIVISION OF McGRAW EDISON

You get a lot more than copper in a* National Electric Coil *job.

Circle 25 on coupon page 87



we're Syn·er·gis·tic...

In the respect that synergy is the cooperative action of two agencies which, together, have greater total effect than the sum of their individual efforts, then we're synergistic.

By melding the Wine Railway Appliance and National Castings sales organizations into one cohesive group we have **multiplied,** rather than added to, our total effectiveness.

National sales representatives will continue to sell National products along with Wine Appliances; former Wine representatives* will sell Wine Appliances and National products, too. To you this means a tighter-knit, more nimble organization to render even better service.

We mean business. We want your business. We'll go to any reasonable (and sometimes unreasonable) lengths to get it. So call any National (or should we say Wine?) representative to see us in action. Synergistically.

single source responsibility

NATIONAL — Couplers; Freight car trucks; Draft gears; Adapters; Yokes; other specialties.
WINE — Hopper frames, locks & hinges; Discharge gates; Cam locks; Bridge plates; Ladders & handholds; Lading band anchors; Drop end locks & balancers; Drop bottom hinges & locks; Brake balancers; Side bearings; Vibrator brackets; miscellaneous castings.

NATIONAL CASTINGS DIVISION
Midland-Ross Corporation

SOUTH DOCK STREET • SHARON, PENNSYLVANIA 16146

For National Railway Specialties and Wine Railway Appliances call

CHICAGO — (312) 922-2620;Walt Dahl, Bob Norton, Arnie Shafer, Bob Vey
CLEVELAND, OHIO — (216) 229-3400; Dom Albanese, George Huml, Tom Moore, Tom Price, Bob Sowers
PHILADELPHIA — (215) 561-1958; Hayden Miller, Jim Schustrich
RICHMOND, VA. — (703) 353-1283; Ken Pankey, Lyle Thomas
ST. LOUIS, MO. — (314) 231-3400; Fred Genger
SAN FRANCISCO — (415) 344-6345 & 344-6346; Bud Neilson
SHARON, PA. — (412) 346-6575; Elton Armitage
TOLEDO, OHIO — (419) 698-4341; Joe Gentry (Wine Appliances only)

*St. Louis Railway Supply Co. will continue to sell Wine products in the St. Louis territory.

A-6086

"With Max, one number does it! 800-328-4567"

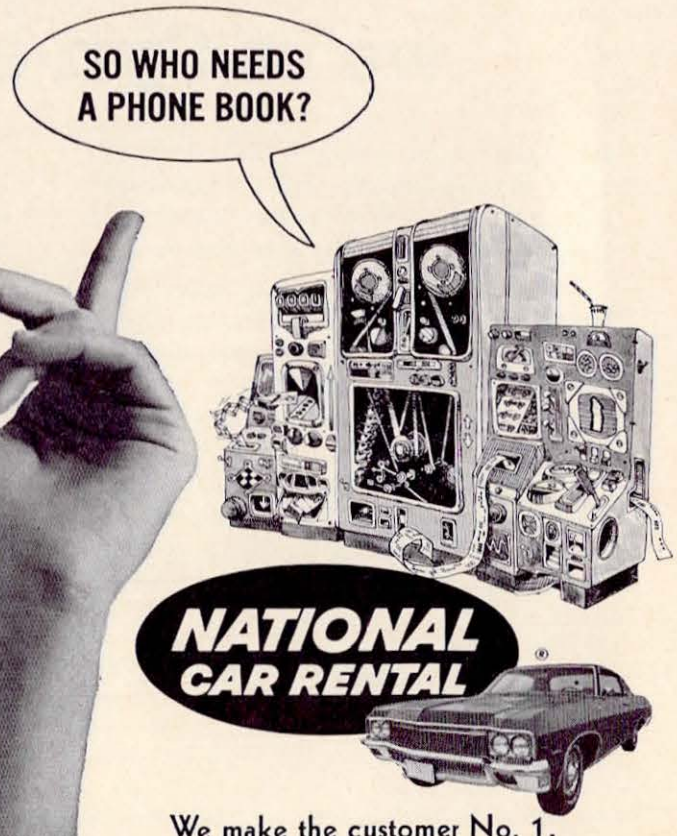
From anyplace call 800-328-4567 for a guaranteed car anywhere.

National makes it easy—you remember just one number for car rental. You call it toll-free from any place and Max, our computer, gets you a guaranteed car reservation anywhere . . . at any one of 2400* worldwide locations.

Max knows where every one of our cars is every minute—the other guys are just guessing. Max doesn't promise; he *guarantees*. Which you'll appreciate if you've ever tried to drive a promise.

Call Max to reserve a Chevy, Buick, Pontiac, Oldsmobile, Cadillac or other fine car. You'll get S&H Green Stamps, too. So next time, call Max. (He's available whenever you are.) Only Max can guarantee car reservations, and only National Car Rental has Max. Let Max do it.

*Tilden-Rent-A-Car in Canada.

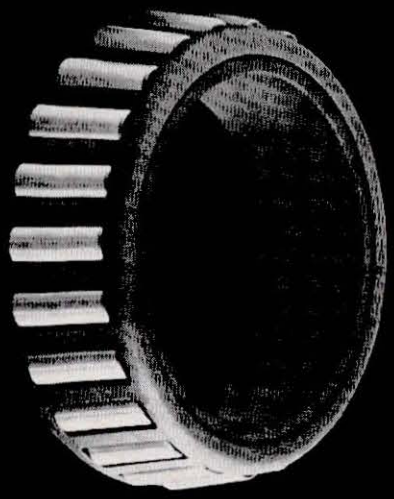


We make the customer No. 1.

© Nat-Car-Rent-Co 1970

BART cars ride on Brenco Bearings.

BART, San Francisco Bay Area Transportation, is more than a rapid transit. It is a transportation system that will open up employment and educational opportunities to underprivileged communities by providing greater mobility for citizens of isolated areas. BART cars are the most advanced rapid transit cars in the world... light, high-speed, low-maintenance... built by Rohr Corporation with Rockwell trucks and using the most modern tapered roller bearings available today... BRENCO.

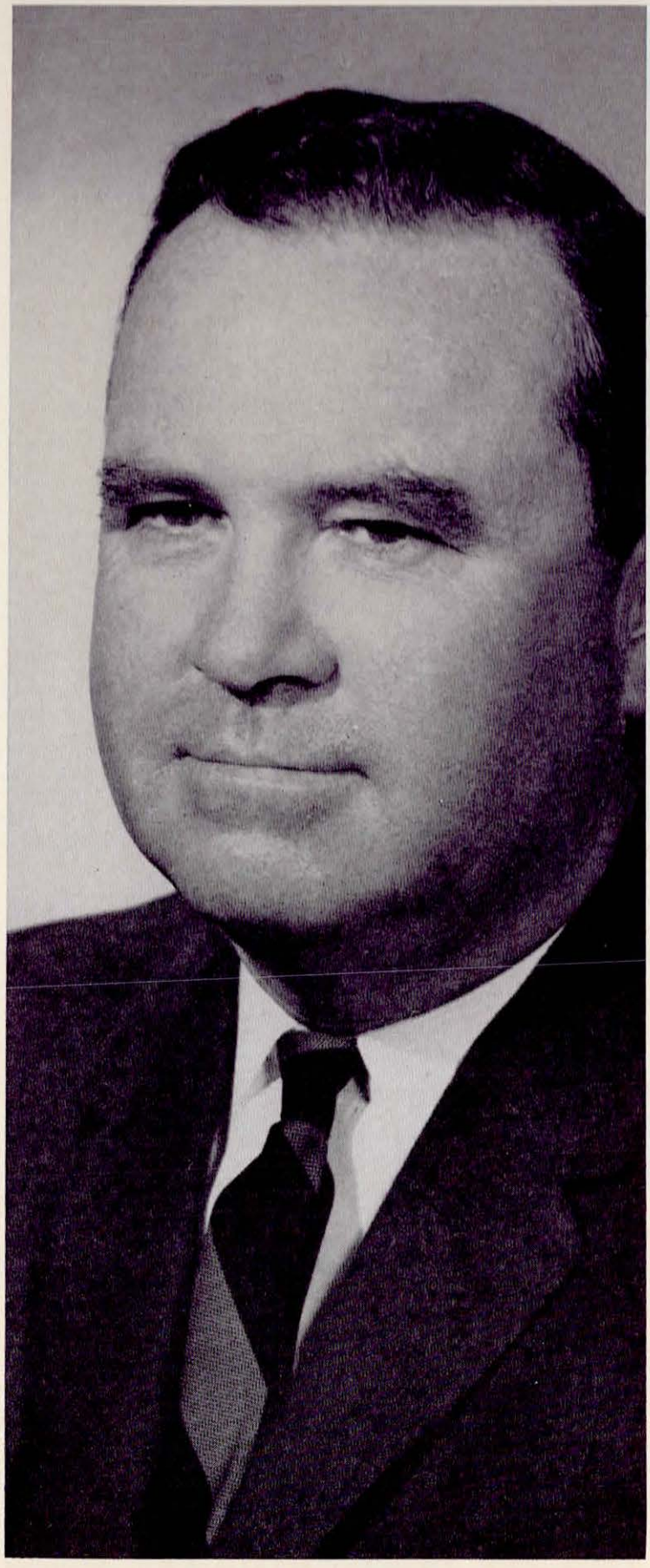


Brenco Incorporated, Petersburg, Virginia.

BRENCO Tapered Roller Bearings

BRENCO

"We look to the high level of reporting"



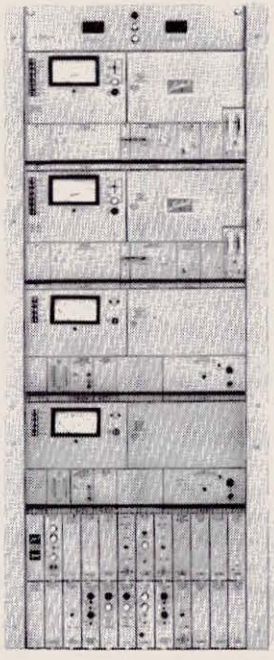
With the technological and service explosion taking place on today's railroads, keeping apace of new developments is an essential part of the daily job. To do this, we look to the consistently high level of in-depth reporting in Railway Age to help keep us informed as to what our industry is doing today, and even more importantly, where it is headed tomorrow.

John H. Lloyd
President
CHICAGO & EASTERN ILLINOIS RAILROAD
and
TEXAS & PACIFIC RAILWAY

RAILWAY AGE AS SEEN THROUGH THE EYES OF RAILROAD PRESIDENTS—NO. 1

A short while back, there was a lot of noise about solid-state microwave systems.

Now, there isn't.



First came solid-state. Now comes Lenkurt solid-state. There's a big difference.

Now Lenkurt engineering offers 1200 channels in the common carrier band. And 600 channels in the industrial band. Both with superior performance at reduced deviations.

And that means a quiet signal.

Lenkurt solid-state also modulates signals at higher basic frequencies. And offers less distortion and fewer multiplication steps by using doublers rather than triplers or higher multipliers.

That means an even quieter signal.

There are other features you'll appreciate, too. Like direct operation from battery voltage. Plug-in IF and baseband components that cut maintenance time.

All in all, the new Lenkurt microwave system will make you glad you didn't rush into solid-state.

And waited for Lenkurt to quiet things down.

LENKURT ELECTRIC
GENERAL TELEPHONE & ELECTRONICS

Write Lenkurt Electric Co., Inc., Dept. C720, 1105 County Road, San Carlos, California 94070.

Microwave Systems from Lenkurt

LETTERS

Transit car weight

Montreal, Canada

To the Editor:

I have read with great interest the article in the April 13 issue of Railway Age under the title, "Today's mock-up will be tomorrow's prototype." I was very pleased to note that the first of the ten prototypes of the BART cars will be delivered on time, Aug. 28 of this year. This, on its own, will really be a great achievement.

I also note in the same article a few statements on which I would like to express my comments. I quote the pertinent statements: "Rohr plans to introduce many aerospace manufacturing methods into production of the BART cars. For one thing, the body of the car will be built so that it—and not an underframe—will carry the load. This construction method, called semi-monocoque, will cut down considerably on the weight, making the BART cars the lightest—at 800 pounds per linear foot—of any transit vehicles in the world. Next in line, say Rohr people, are Berlin's at 850 pounds. By comparison, most transit vehicles in service today, weigh somewhere between 1,000 and 1,300 pounds, Rohr engineers add."

To my knowledge, there is no rapid transit or passenger car in the world whose underframe carries the load. The full vertical load is always transferred to the sides of a car body and they act as carrying members for the total load. In modern car design, the end load is also being transferred to the sides.

The semi-monocoque construction came from the aircraft and not from aerospace industries and has been in use for some time in rapid transit and passenger car design.

If the actual final weight of the BART car will be 800 pounds per linear foot, then the Rohr Corporation and the suppliers of the equipment will deserve full marks. Nevertheless I would like to correct the following statement, "making the BART cars the lightest—at 800 pounds per linear foot—of any transit vehicles in the world."

It is public knowledge that the Toronto cars, designed and built by Hawker Siddeley Canada Ltd., weigh only 745 pounds per linear foot and these cars were built about seven years ago. The Stockholm C-5 subway cars weigh 780 pounds per linear foot. The Expo cars, also built by Hawker Siddeley, weigh 815 pounds per linear foot. Therefore the Berlin subway car is not the second lightest car in the world.

To my knowledge, most of the modern rapid transit vehicles weigh less than 1,000 pounds per linear foot, only the old stock weigh more than 1,000 pounds.

M. Murzynski, Director
Product Development & Special Projects
Hawker Siddeley Canada Ltd.

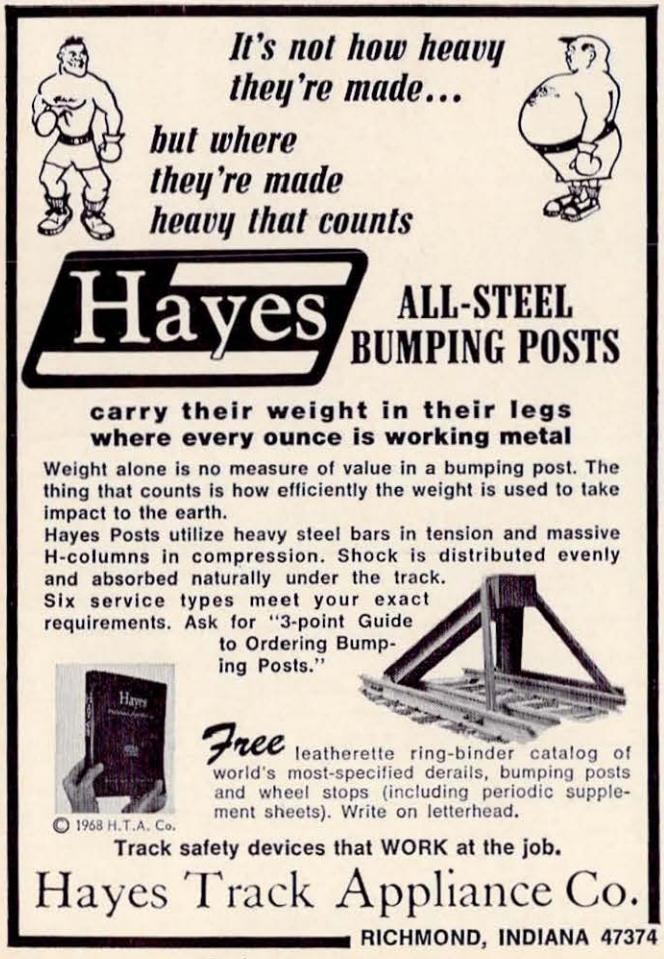
Freeport Center

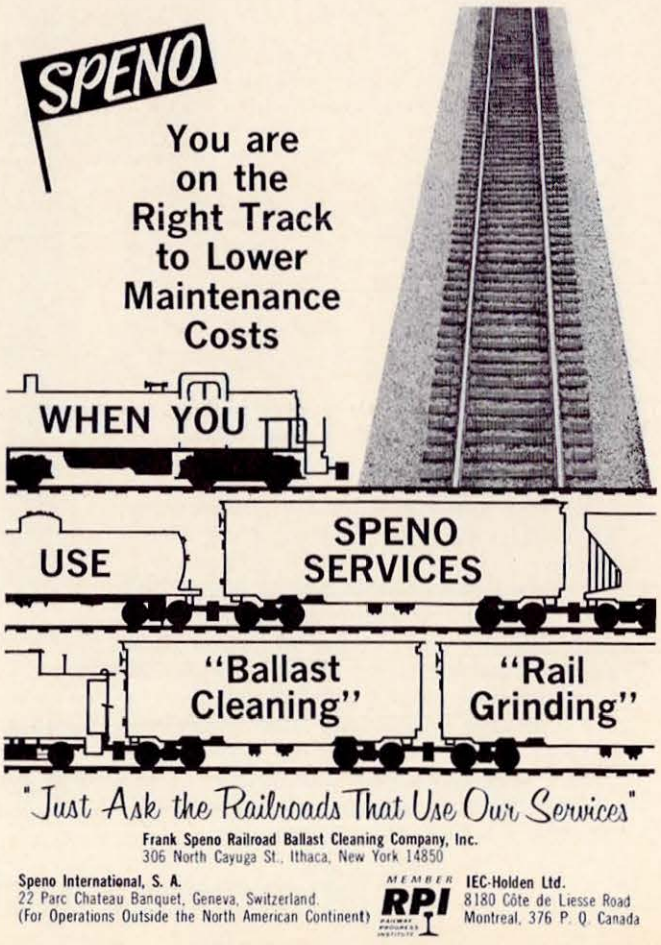
Clearfield, Utah

To the Editor:

This letter is written to express our appreciation for the very comprehensive and accurate article in your April 27 issue concerning Freeport Center, Utah. We are deeply appreciative of this coverage, and particularly the professional manner in which it was handled by your writer, Robert Bartley.

Otis M. Plant
General Manager
National Warehouse & Distribution Co.


It's not how heavy they're made...
but where they're made heavy that counts
Hayes
ALL-STEEL BUMPING POSTS
carry their weight in their legs where every ounce is working metal
Weight alone is no measure of value in a bumping post. The thing that counts is how efficiently the weight is used to take impact to the earth.
Hayes Posts utilize heavy steel bars in tension and massive H-columns in compression. Shock is distributed evenly and absorbed naturally under the track.
Six service types meet your exact requirements. Ask for "3-point Guide to Ordering Bumping Posts."
Free leatherette ring-binder catalog of world's most-specified derails, bumping posts and wheel stops (including periodic supplement sheets). Write on letterhead.
© 1968 H.T.A. Co.
Track safety devices that WORK at the job.
Hayes Track Appliance Co.
RICHMOND, INDIANA 47374
Circle 30 on coupon page 87


SPENO
You are on the Right Track to Lower Maintenance Costs
WHEN YOU
USE
SPENO SERVICES
"Ballast Cleaning"
"Rail Grinding"
"Just Ask the Railroads That Use Our Services"
Frank Speno Railroad Ballast Cleaning Company, Inc.
306 North Cayuga St., Ithaca, New York 14850
Speno International, S. A.
22 Parc Chateau Banquet, Geneva, Switzerland.
(For Operations Outside the North American Continent)
MEMBER RPI
IEC-Holden Ltd.
8180 Côte de Liesse Road
Montreal, 376 P. Q. Canada
Circle 29 on coupon page 87

MLW-Worthington's new, powerful, rugged 'M' line

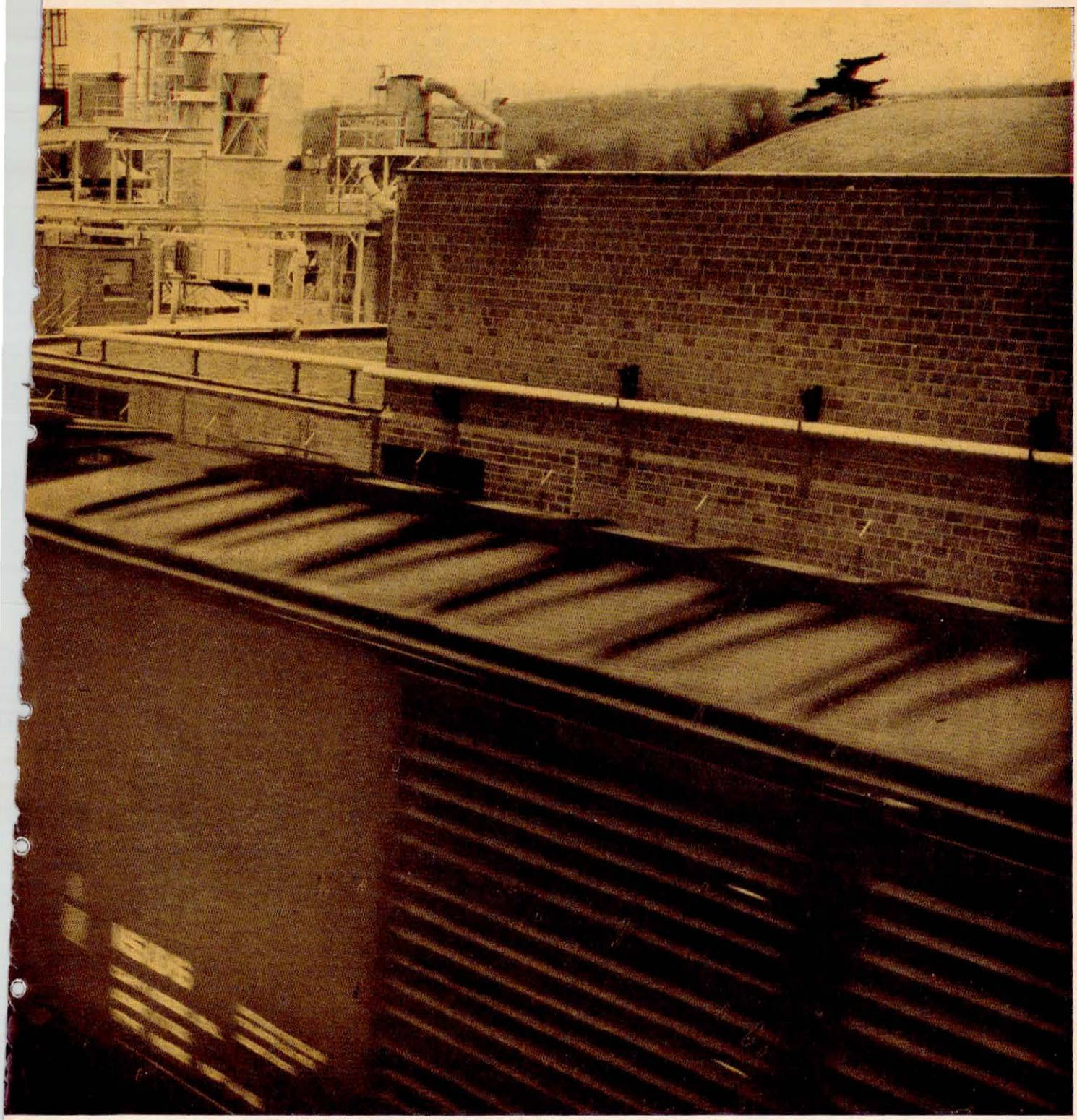
The 'M' line is a complete new generation of 2,000 to 4,000 hp diesel locomotives designed and built by MLW-Worthington. Some of the technological improvements incorporated into the 'M' line include: up-dated Model 251 engines with high capacity, water-cooled turbocharger and steel cap pistons; a single mechanically-driven blower and fully ducted electrical cooling and combustion air system; pressurized electrical control compartment; hi-adhesion trucks with low weight transfer characteristics and matching wheelslip highly discriminating and modulating control system.

If you are interested in economical power, call us.

Transportation Division
MLW-Worthington Limited
Montreal, Quebec, Canada

Circle 31 on coupon page 87

Funny thing about National Lead, we not only make railroad equipment–we use it.



National Lead knows how important railroad equipment is. With 100 mines, mills and plants throughout the country, we ought to. We depend on rail service for getting raw materials in on time and for getting our products out on time.

Our Magnus Division makes roller bearings, journal bearings, traction motor and diesel engine bearings, and work equipment replacement parts for the railroad industry. Important? We know it. We ought to.

Railroad Products

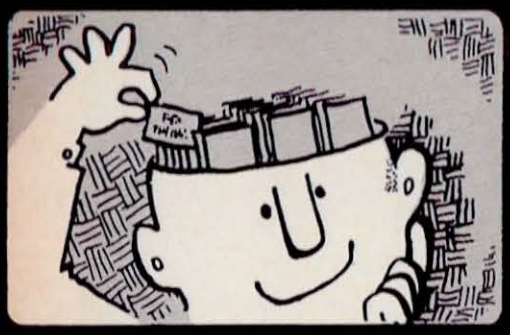
NL Magnus

NATIONAL LEAD

Circle 32 on coupon page 87

Sales messages never die

From the Railway Age Group slide film: "Getting Your Full Potential from the Railroad Market"



Points Discussed

Points Discussed

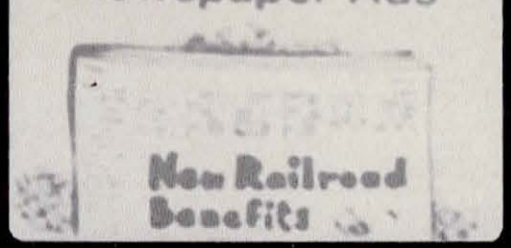
1 If people had perfect, filing-card-type memories, you would say something to them once—and that would be that. You would make one sales call—tell the whole story—then go back to the office and wait for orders. But memory is not like that. One of the classic demonstrations of the frailty of memory was an English experiment. . . .

2 At a meeting of the Cambridge Psychological Society, a recording was made of the discussion—without the knowledge of those present. Two weeks later, the same people were asked to write down everything they could remember about the points discussed.

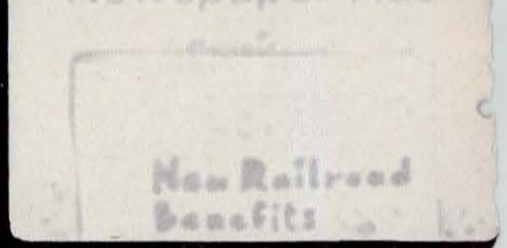
3 On the average, people recalled only 8.4 per cent of the points they had discussed. *And what people "remembered" about the points was substantially wrong in 42% of the cases!* And these were scholars intent on their study—not just people listening to a salesman. How well are salesmen's calls remembered?...

Newspaper Ads

Newspaper Ads



Newspaper Ads

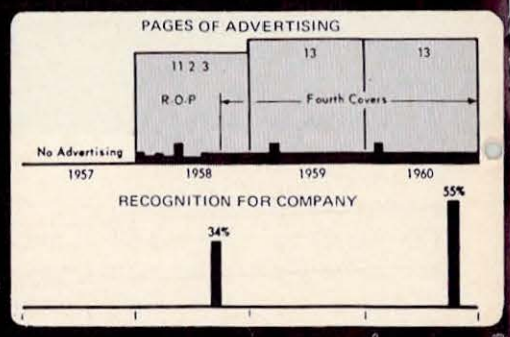


7 For example, Daniel Starch found that newspaper advertisements rapidly faded away . . .

8 After one day, only 36.8% recognized a set of advertisements in newspapers . . . after five days only 30% . . .

9 After eight days, only 26.5% recognized the advertisements. There have been dozens of tests like these . . .

IF THE PROSPECT DOESN'T KNOW—OR REMEMBER—THE NAME OF YOUR PRODUCT OR SERVICE, YOUR CHANCE OF MAKING A SALE TO HIM AT THAT TIME IS VERY LOW INDEED.

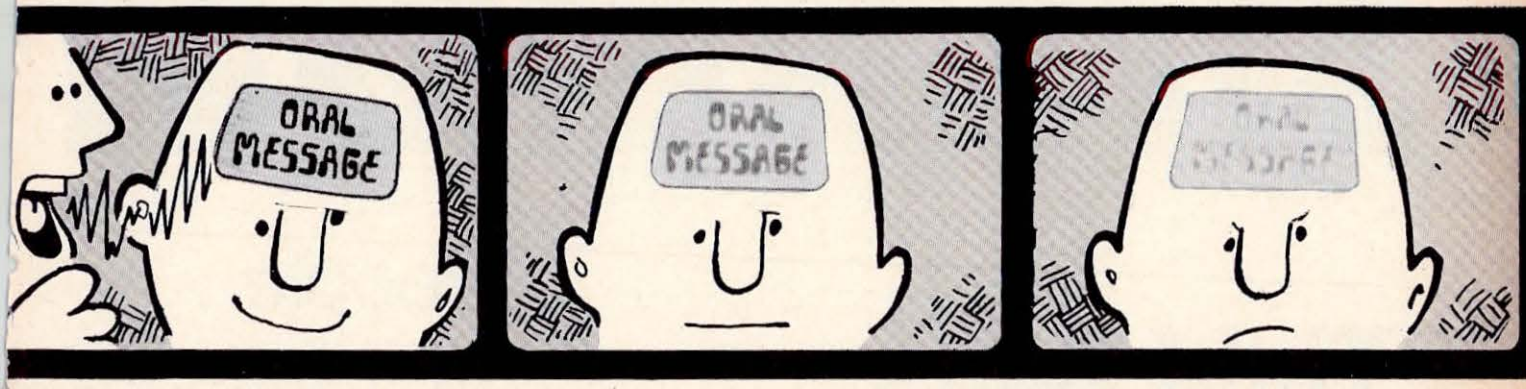


13 Let's be clear about the value of recognition studies. Selling begins, of course, with the prospect's awareness of who you are—of what you're selling and what it can do for him. Selling collapses when the prospect no longer recognizes the product or service by name.

14 A test for product or company recognition, therefore, provides a basic reading of where a manufacturer stands with a prospect. With recognition, he's in the running. Without recognition, he's apt to be out of it entirely.

15 After appearing for a short time in R-O-P space, a manufacturer of electronic equipment made a survey among readers of AVIATION WEEK, asking them if they were familiar with the name of his company. 34% were. Then he switched to fourth covers. Two years later, recognition had stepped up to 55%.

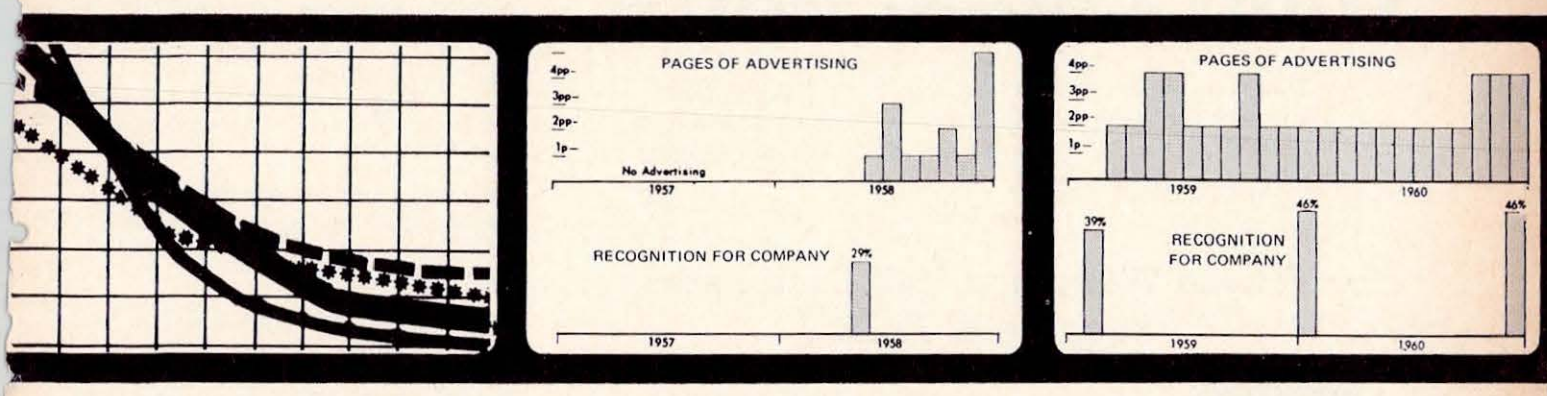
they just fade away



4 Studies by Dr. E. L. Thorndike of Columbia University show that of an oral message . . .

5 Only 72% is remembered after one day . . . only 52% is remembered after one week . . .

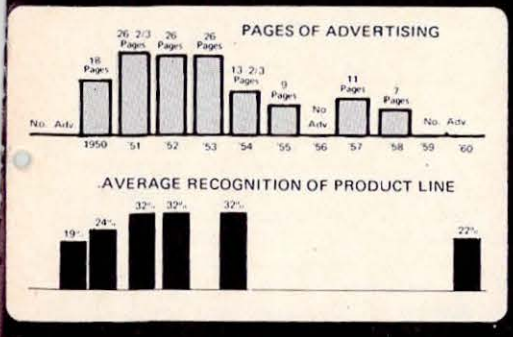
6 Only 30% is remembered after one month. How well are advertisements remembered? Well, you don't run an advertisement and forget it. The *readers* forget it for you!



10 If you plotted a few, you'd find that they all conform quite closely to a "curve of forgetfulness." The low cost way to combat this fading of memory is with *frequently repeated advertising*—to make sure that your prospects keep what your salesmen say in mind. A maker of processing equipment wanted to be sure he was doing this . . .

11 Before beginning an advertising campaign in June, 1958, he surveyed a sample of CHEMICAL ENGINEERING subscribers and asked them: "What companies do you consider to be leading manufacturers of centrifugal separators?" 29% of them named his company, among others.

12 A year later—and after he had run 14 pages of advertising—his recognition had increased to 39%. After 26 pages, his recognition had risen to 46%. Eleven months later, recognition had stabilized at 46%. This study, like the two that follow, is reported by McGraw-Hill's Laboratory of Advertising Performance.



THE RAILWAY AGE GROUP

16 Here's what happened when a manufacturer first increased, then maintained, then dropped his advertising. Providing almost a mirror image of his advertising pattern, recognition rose from 19 to 24 to 32%—held at 32%—then fell off to 22%. *Clearly, just as more advertising builds you up, less advertising lets you down.*

17 What does the prudent supplier do to keep his story strong and clear in the fading memories of his prospects? *He advertises regularly!* With the cost of a sales call pushing $50, regular advertising is one of the soundest business investments a seller can make today.

18 In advertising to the railroad market, the soundest investment is the Railway Age Group—semi-monthly RAILWAY AGE and monthly RAILWAY LOCOMOTIVES & CARS, RAILWAY TRACK & STRUCTURES and RAILWAY SIGNALING & COMMUNICATIONS. So well do they fit the market pattern, that they give you unmatched coverage and impact.

For more information, or to see the film sampled above, write Simmons-Boardman Publishing Corp., 30 Church, New York, N.Y. 10007

John C. Danielson
C&NW

C. Davies Meitin
FEC

Ellis L. Simmons
FW&D

J. W. Tipton
Frisco

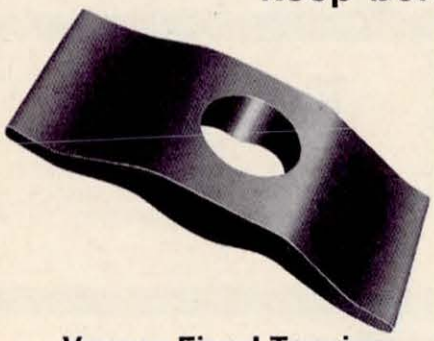
H. H. Knuth
Frisco

N. A. Kirchoff
Frisco

Tight Bolts cost less than Loose Bolts

That's right. Loose bolts add up to costly, time-consuming, and just plain unnecessary repairs. Woodings eliminates these problems through rail fasteners that hold, and hold, and hold.

These Woodings Rail Fasteners keep bolts *TIGHT*



Verona Fixed Tension TRIFLEX SPRINGS

. . . providing equal and proper tension in all track bolts. The Verona Triflex Spring is the only practical device available to keep track bolts tight with equal calibrated tension in all bolts.

Verona *"Special"* ALLOY NUT LOCKS

. . . with the wide reactive range needed to keep track bolts tight. This reduces angle bar wear and rail batter, eliminates periodic bolt tightening. Available in five convenient sizes.

WOODINGS-VERONA TOOL WORKS

Verona, Pa. 15147

Circle 33 on coupon page 87

People

CANADIAN PACIFIC.—I. S. Ramsay, regional manager—marketing and sales, Toronto, Ont., transferred to Winnipeg, Man.

CHESAPEAKE & OHIO.—James A. Edwards, Jr., traveling freight agent, Wilmington, N.C., appointed regional manager—customer service, Chicago Region. **James D. Heath,** district sales manager, Chicago, named assistant regional sales manager, Cincinnati, Ohio. **Kenneth M. Hanley,** district sales manager, Grand Rapids, Mich., appointed assistant regional sales manager, Detroit.

D. J. Sogge appointed manager—world commerce, Richmond, Va., succeeding **J. K. O'Brien** (RA, May 25, p. 87).

CHICAGO & NORTH WESTERN.—John C. Danielson, assistant to the vice president-operations, named assistant vice president-operating administration.

COLORADO & SOUTHERN.—John W. Terrill, vice president, elected president. **J. C. Street,** assistant general counsel, elected general counsel. Other officers elected, all of whom hold related positions with Burlington Northern: **Robert W. Downing,** vice president; **Norman M. Lorentzsen,** vice president, operations; **M. M. Scanlan,** vice president, traffic; **William N. Ernzen,** vice president and comptroller; **Frank H. Coyne,** vice president, management information services.

FLORIDA EAST COAST.—C. Davies Meitin, general traffic manager, advanced to assistant vice president-traffic and industrial development departments, St. Augustine, Fla.

FORT WORTH & DENVER.—Ellis L. Simmons, vice president, elected president. Mr. Simmons succeeds **William J. Quinn,** now chairman of the **Milwaukee** at Chicago (RA, March 30, pp. 84 and 86).

Other officers elected, all of whom hold related positions with **Burlington Northern: Robert W. Downing,** vice president; **Norman M. Lorentzsen,** vice president, operating; **M. M. Scanlan,** vice president, marketing; **Anthony Kane,** vice president and general counsel; **Frank H. Coyne,** vice president, management information services.

FRISCO.—J. W. Tipton, manager motor

NOW!
Get brake shoes off in just 10 seconds ...with NEW ANCHOR YANKER!*

No more knuckle-banging for up to 15 minutes to remove pesky brake shoe keys. The new Griffin "Anchor Yanker" key remover does the job fast and easy. In ten seconds. Simply slip one end-loop over the shoe key. Insert a crowbar into the other loop. Yank! Key pops out. Shoe is released.

□ We'll soon be packaging a FREE "Anchor Yanker" with every pallet of Anchor Brake Shoes. And they'll also be available at $5.00 each from Griffin. Order your Anchor Brake Shoes today. Get in on a potential savings of over ½ million man hours a year to the railroad industry.

anchor brake shoes

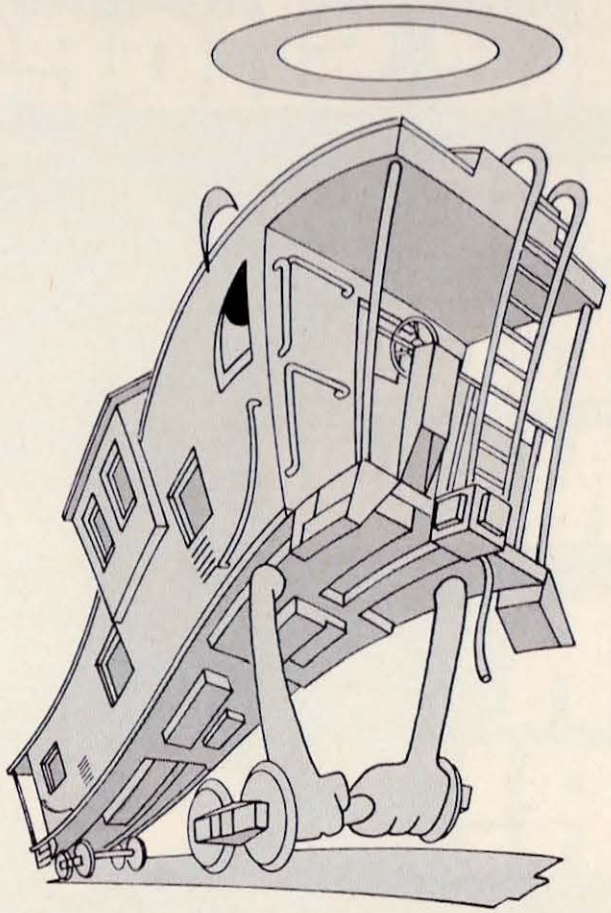
A product of Griffin Wheel Company
445 No. Sacramento Blvd., Chicago, Illinois 60612

ONE OF THE Amsted INDUSTRIES

*The trademark, Anchor Yanker, is the property of AMSTED Industries Incorporated. Patent Applied for.

Circle 34 on coupon page 87

International cabooses don't wear halos



They do wear like iron

International Cabooses have a lot of things going for them. Like the fact that 90% of our railroads use them.

But they aren't heaven-sent. They don't have halos. They are sent out of our plant with construction and safety features galore!

Result? Our caboose cars are far from caboose position as sales go. They're where the locomotive is — UP FRONT.

All of which — when you pause to purchase caboose cars — you should give pause for thought.

International Car co.

835 Englewood Ave./Buffalo, New York 14223

Representatives: M. H. Frank — Cleveland, O. • Prest Company — St. Paul, Minn. • R. B. Hornberger — San Francisco, Cal. • F. E. Ross, Jr. — St. Louis, Mo. • E. J. Hasten, Jr., W. B. Reed — Chicago, Ill.

MEMBER RPI RAILWAY PROGRESS INSTITUTE

Circle 35 on coupon page 87

S. F. Stecher
Frisco

W. H. Cramer, Jr.
Frisco

R. J. Rodefeld
Frisco

John B. Goodrich
IC

transportation and TOFC services, appointed to the newly created position of vice president-intermodal services. Mr. Tipton will continue to serve as vice president and general manager, **Frisco Transportation Co.,** a Frisco subsidiary. **H. H. Knuth,** general sales manager, named assistant vice president and general sales manager; **N. A. Kirchoff,** director of industrial development, appointed assistant vice president and director of industrial development; **S. F. Stecher,** general manager rates, named assistant vice president traffic-administration; **W. H. Cramer, Jr.,** director of traffic development, becomes assistant vice president and director of traffic development and planning; **R. J. Rodefeld,** assistant general manager rates, named assistant vice president and general manager rates, all with headquarters in St. Louis. **O. P. Wieland,** manager rates, succeeds Mr. Rodefeld.

GULF, MOBILE & OHIO.—Frank J. Lott, assistant vice president, promoted to vice president.

ILLINOIS CENTRAL.—John B. Goodrich, assistant treasurer and assistant secretary, elected secretary and treasurer.

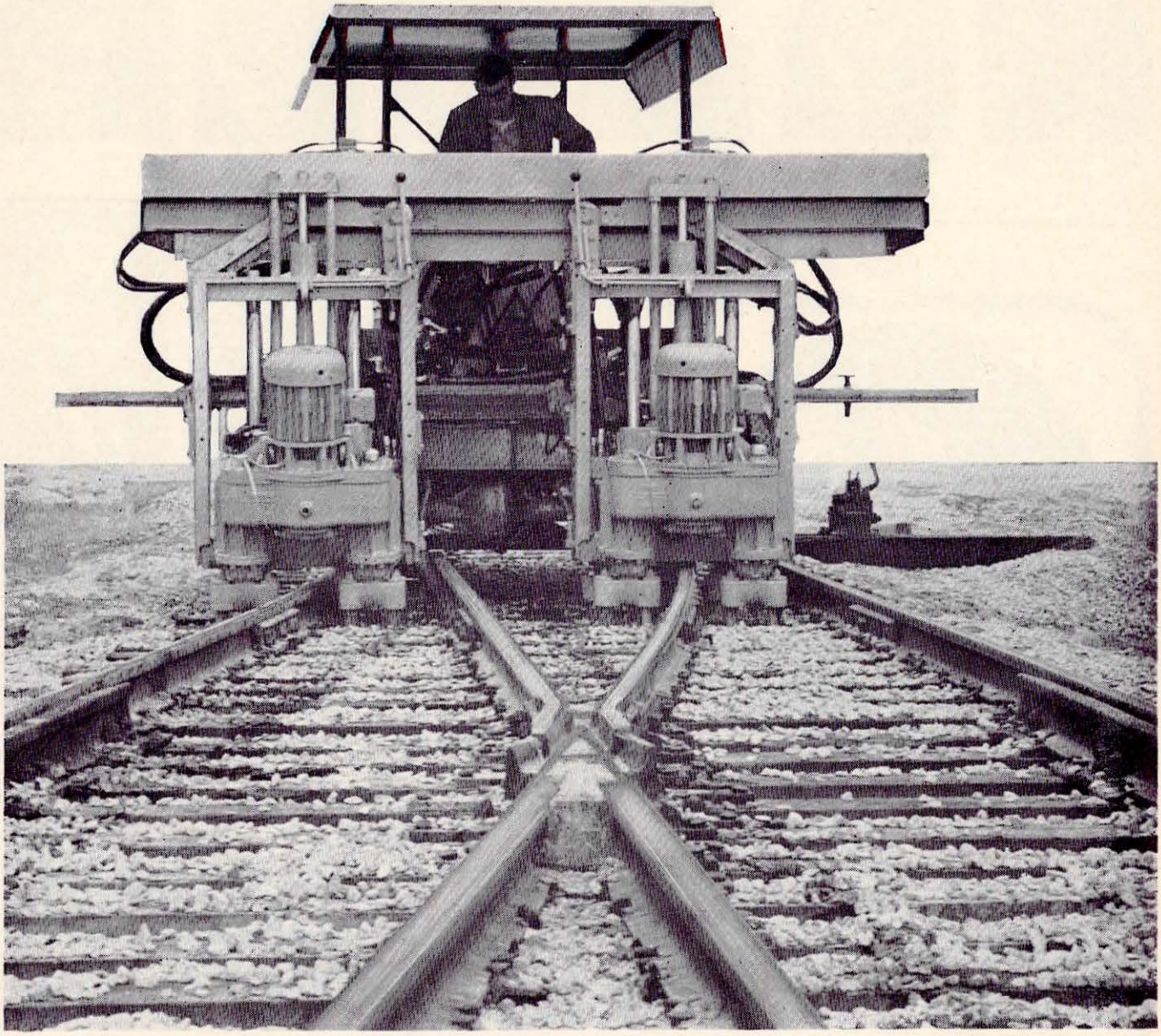
Jack C. Humbert, vice president, Mechanical Department, elected vice president operations, succeeding **W. H. Thompson,** assigned other duties.

Bryan D. Venable named chief mechanical officer.

G. Frank Blankinship, manager of international sales, advanced to general manager intermodal services. With Mr. Blankinship's promotion, the office of international sales was combined with the intermodal services department.

Thomas D. Fogarty, manager of the special services department, named director of special services to succeed **Delbert L. Wood,** retired. *(Continued)*

One operator tamps the entire switch!



The New 16-Tool Switch Electromatic Tamper

It does everything the popular Junior Electromatic can do. And more! The TAMPER Switch Electromatic tamps the complete switch, turnout, crossover or ladder-track with 16 tools. At production tamper speed and pattern! Workheads can move laterally to give you higher, more uniform compaction. Another big advantage: it needs only one operator.

When you're not using it as a switch tamper, it doubles as a production tamper — for smoothing and spotting. And as a second machine in a tandem operation. The TAMPER Switch Electromatic is available with a pivoting frame to line the vibrators to the same degree as the turnout being tamped. So you get the same results as when you tamp a standard cross tie.

TAMPER designs and manufactures a complete range of railway track maintenance equipment, from spike pullers to switch cleaners. All pacemakers in design and performance.

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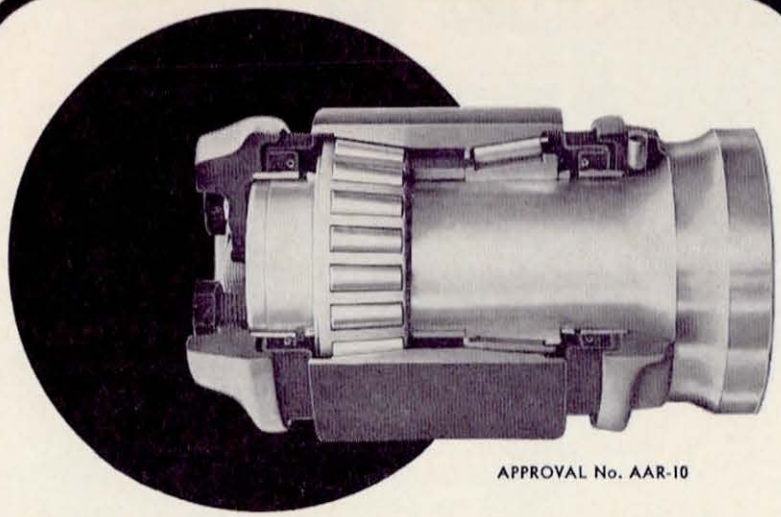

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Circle 37 on coupon page 87

John F. Cleary, district sales representative, Chicago, becomes district sales manager, Houston.

Cynthia Y. Soltes, labor relations assistant, named labor relations staff officer.

IC has enlarged its industrial development office at Jackson, Miss., to serve the Gulf Region. Named manager of the new Gulf Region office is **John I. Rucker,** formerly manager industrial development-Mississippi. **Donald E. Rinehart,** forestry agent, Hattiesburg, Miss., named industrial development representative, Gulf Region.

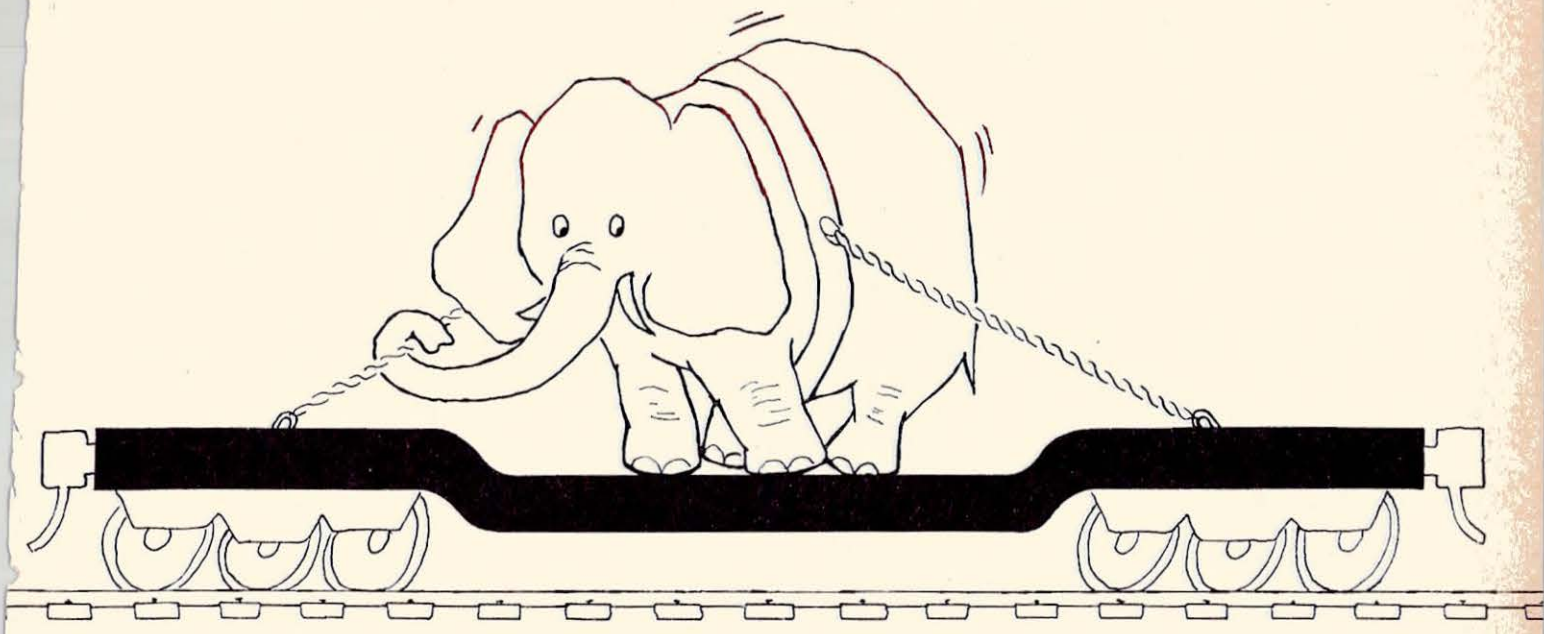
ILLINOIS TERMINAL.—H. D. Johnson elected secretary-treasurer and general solicitor, St. Louis. **C. E. Hatfield** appointed chief accounting officer; **L. B. Rudloff,** controller, both with headquarters at St. Louis.

JERSEY CENTRAL.—L. Frank McChesney appointed manager of industrial development, Newark, N.J.

LOUISVILLE & NASHVILLE.—W. Gavin Whitsett, vice president-traffic, elected senior vice president; **Philip E. Geil,** vice president-traffic administration, named vice president-marketing; **Douglas McKellar,** assistant vice president, sales, appointed vice president-sales. **James C. Pickett,** real estate agent, named to the newly created position of assistant vice president-industrial and real estate development. **James L. Kiesler** named manager-real estate. **E. J. Duane** and **John V. Doll** become assistant managers.

John B. Ammon, general agent, Los Angeles, appointed division sales manager, Memphis, Tenn., to succeed **George W. Ryan, Jr.,** who retired Apr. 30 after more than 42 years' service. **Robert F. Veselic,** sales representative, Pittsburgh, named district sales manager, Los Angeles, to succeed Mr. Ammon, and in turn is suc-

(Continued on page 88)



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Circle 38 on coupon page 87

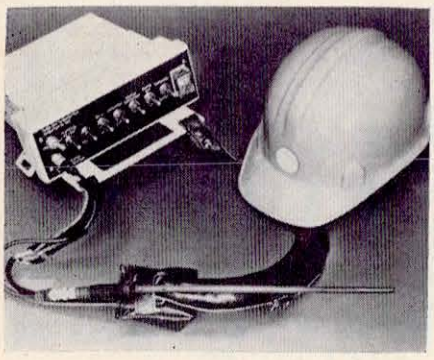
New Products Report

Car retarder (RA-1)

A series of Hydrabrakes spaced at 7- to 10-ft intervals along the track are used in the retarding system for controlling movement of free-rolling cars developed by Strachan & Henshaw of England and now in use at the Santa Fe one-spot car repair facility at Temple, Tex.

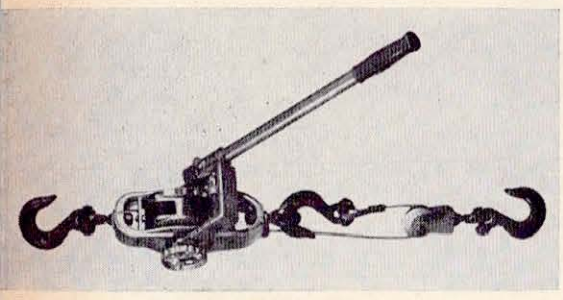
Rocker arms connected to pistons in the brake cylinders of the system are depressed by wheels passing over, thus achieving a braking effect. A winch-and-cable arrangement pulls cars into the shop and, after repairs are completed, starts moving cars out onto outbound track which has a natural gradient beginning at about 1% and reducing to between 0.50 and 0.75%. Car speeds are maintained at about 4 mph down about 600 ft of track to point of coupling with other cars. No switch engine or other mechanical means of moving cars is needed.

Cars leaving the shop are dispatched, unattended, downgrade, bunched and coupled, ready for pick-up. The system can safely handle cars with gross weights up to 130 tons. *Whiting Corp.*



Remote control (RA-2)

A second-generation radio remote control system for locomotives utilizes solid-state components to produce a digital logic system. This Pulse Control Modulated (PCM) System has a lightweight, portable transmitter with standard locomotive command functions, plus nine additional optional controls. The portable unit has an "attitude deadman" which assures an emergency stop if the operator is more than 60 degrees from vertical for a period in excess of 2 seconds. Receiver logic consists of only five logic cards, plus the RF receiver, and can be readily adjusted to assure individual control responses of fleets of up to 30 locomotives. Time-sharing techniques, with a 500 milli-second lapse between transmissions, are combined with a single-frequency capability to allow each unit to have its own "air time." The self-synchronous logic provides safe operation and a minimum of interference from any other nearby transmitter. *General Electric.*



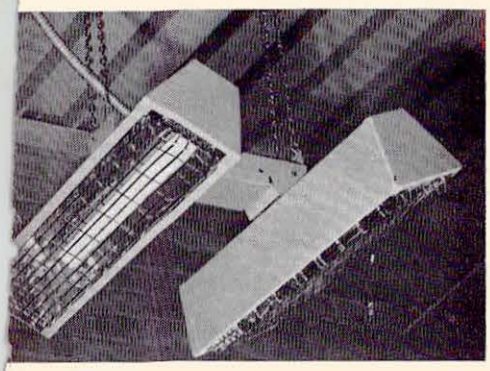
Car-door puller (RA-3)

The modified portable-type car-door puller added to the line of Cadillac hoists is said to eliminate stress and strain in opening and closing 50-ft box-car doors. The one-man-operated unit, weighing only 14 lb, has a 30-ft reach and a capacity of 1½ tons.

Castings are made of a special aluminum alloy. Preformed aircraft cable is standard, but stainless-steel cable can be had at extra cost. Safety handle bends before any part of puller is overloaded, and main frame protects drum and teeth from damage when rubbing against doors and sides. Handle can be reversed with the twist of a button for convenience of operation. *Aluminum Products Inc.*

Portable tanks (RA-4)

AquaSystems tanks, in which up to one million gallons of water can be stored for reclamation or purification, are structurally "elastic" to accommodate movement as well as thermal and physical stress. The portable, prefabricated tanks are suitable also for storing chemicals, oils, or solids such as salts, grains, and similar dry substances. Open or closed-envelope plastic liners are furnished for most solvents and corrosives. Tanks may be erected on site in one day by semi-skilled crews. *Modular AquaSystems.*

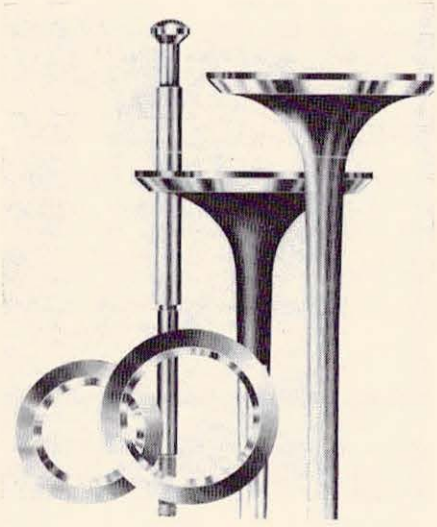


Infrared heater (RA-5)

The dual-element Ceraglo heater uses the same heating principles as the single-element heater. It provides 3,000 watts of direct infrared radiant heat and is UL listed for indoor and semi-enclosed areas.

The two reflector housing assemblies, joined by a supporting wiring box and attached to the interconnecting box with a hinge and set-screw arrangement, can be individually adjusted within a 30-deg arc. Field wiring can be directly connected within the central box on top of fixture so an additional junction box is not required.

Operating voltages of 297, 240 or 277 volts may be chosen, depending upon the elements used. The elements are purchased separate from the fixture. *3M Co.*



Diesel engine valves (RA-6)

Two types of diesel engine valves and valve seat inserts of a metal compatibile with the extra-hard valves are now available. An electric upset method produces the bodies for the Standard and Super valves. The seat area of the Super model is hard-faced with a cobalt-base alloy highly resistant to corrosion, high temperatures and indentation. Exhaust valves may be supplied with Inconel heads, applied by a swedging and coining process, to give still more resistance to heat and fatigue. Valve seats and valve-seat inserts are produced from high-alloy individual castings resistant to high temperatures. *Super Co.*

Microphor toilet (RA-7)

A Microphor-type self-contained toilet, the "Honest john," has been adapted for use in locomotives, cabooses and business cars. One model may be operated with a hand pump, electric pump or 15 psi air pressure for continuous service.

The toilet operates on the proven Microphor system of treatment which results in effluent that is free of solids.

The Microphor system has been used in homes, schools and restaurants for six years. There is no holding tank or chemicals. It will operate continuously without odor or need for flushing the processing tank.

The Honest john is durable, shock resistant and easily installed with only four bolts for attachment to the floor. It is 32 in. high, 22 in. wide and 29 in. deep. *Standard Railway Equipment.*

Fuel additive (RA-8)

A diesel fuel stabilizing treatment, Nalco 2210, reduces sludge formation and controls corrosion. It contains polymeric compounds and dispersants which are effective against existing sludge as well as discouraging additional formation. The material, supplied as a liquid concentrate, is normally introduced in the range of 40 to 80 ppm by a proportioning pump or siphon feeder as the fuel is loaded in wayside storage tanks. Among the benefits claimed for the treatment are reduced filter plugging and injector sticking, more complete fuel combustion with clearer exhaust, and a reduction in sparking. *Nalco Chemical Co.*

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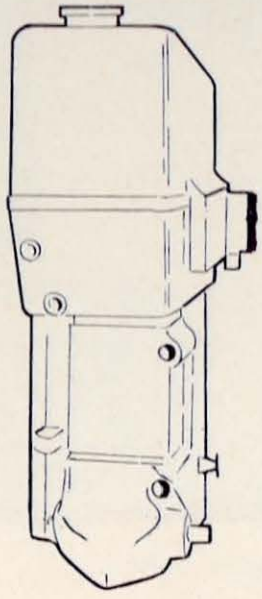

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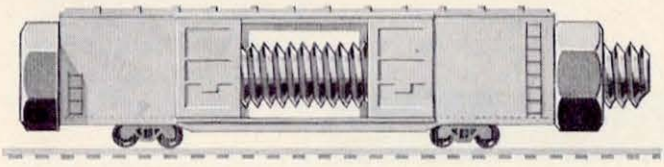

Railroads and car builders have been using Lanman bolts and nuts to help hold freight cars and railway equipment together for over 90 years. What you want . . . safety, reliability, economy . . . is built into every Lanman bolt. Your special bolts, from ¼" to 4", are our standards.

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George R. Wallace
PC

Leo C. Hudson
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David F. Pilkinton
WP

(Continued from page 84)

ceeded by **Edward T. Lauricella,** chief clerk, Pittsburgh.

MAINE CENTRAL—PORTLAND TERMINAL.—Bradley L. Peters appointed director of public relations, Portland, Me., succeeding **Miss Nathalie J. Alward,** who became director of alumnae affairs at Westbrook Junior College. Mr. Peters was producer-director for the Maine Educational Television Network at Orono.

PENN CENTRAL.—George R. Wallace, assistant vice president—pricing, promoted to vice president—coal and ore traffic, succeeding **Paul Funkhouser,** named senior vice president—passenger service.

James P. Roche appointed captain, Metropolitan Region, New York, with responsibility for the administration of security procedures and police radio operations. Mr. Roche was formerly administrative lieutenant, Pennsylvania Station.

Leonard G. Kuch III named equipment planning analyst, Philadelphia.

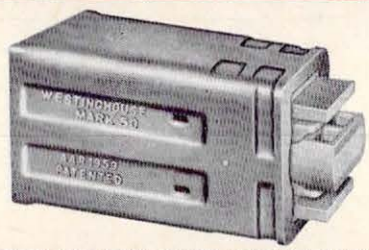
SANTA FE.—Leo C. Hudson, assistant vice president, appointed vice president-traffic, to succeed **Theodore M. Caiazza,** who retires June 30. **William Campbell,** area sales representative, Minneapolis, named district sales manager, Memphis, Tenn., succeeding **Russell L. Pinnau,** district agent, named district sales manager, Cincinnati (RA, Apr. 27, p 61).

WESTERN PACIFIC.—David F. Pilkinton appointed chief mechanical officer, Sacramento, Calif. He was formerly chief mechanical officer, **Missouri-Kansas-Texas.**

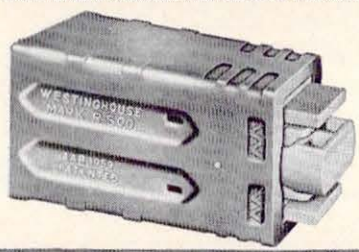
WESTERN RAILROAD ASSOCIATION.—Clair M. Roddewig, chairman, retired April 30. Mr. Roddewig was president of WRA's predecessor organization, **The Association of Western Railways.**

SMOOTH CONTACTS

MARK 50



MARK R-500



By keeping damage and maintenance to a minimum, Westinghouse Draft Gears Mark 50 and Mark R-500 smooth contacts with cars and shippers.

Mark 50 and Mark R-500 feature the exclusive Westinghouse patented friction clutch mechanism which guarantees smoother performance in coupling and train operations—and with economy. Friction parts located on inner surfaces eliminate wear on the housing, the most costly part of the gear. Long life and reuse are assured.

Unconditionally Approved under A.A.R. Specification M-901E-62, these draft gears fit 24⅝-inch pockets on all types of freight cars.

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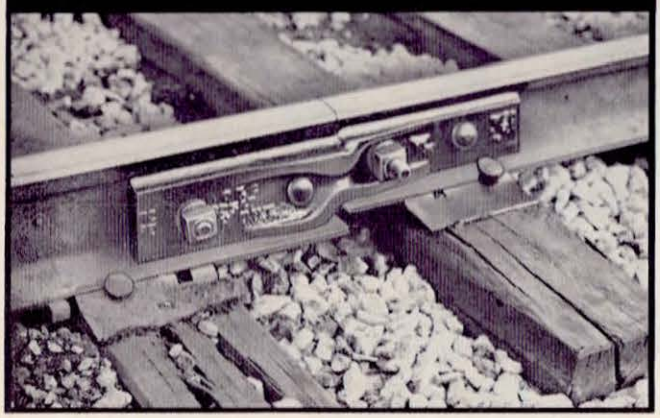

Through the years Q and C Compromise Joints have set a notable in-service record for accuracy and dependability.

They are designed with particular reinforcement where it counts most — at the vital center, on both the front and back of the bar — to assure maximum rail-end durability.

Q and C Step Joints are available in cast alloy steel and in rolled-forged steel.

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- Switch Point Guards
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The man they respect in most shops is the one who's apt to know the answer when a problem arises. You know a man like that; wouldn't you get a lot of satisfaction and personal pride in being like him? Such knowledge sooner or later always adds to the pay check, and too, pays off in greater job satisfaction and personal pride. And who can put a dollar value on that?

You can be such a man by taking this two-year course for mechanical department employees who want to know more about locomotive mechanical equipment maintenance and repair. Two lessons a month, in simple, non-technical language, guide you swiftly to a better working knowledge of the subject. Your lessons are graded by instructors who give individual, personalized advice as needed. The cost is low and payable in monthly installments. For full information, return coupon.

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AUTOMATIC SWITCH POINT LOCK

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Simple to operate — to open switch, push down foot lever and operate switch stand lever in usual manner . . . to close switch, operate switch stand lever and the **AUTOMATIC SWITCH POINT LOCK** returns to locked position. Two sizes: No. 1 for 5½" rail base and under; No. 2 for rail bases over 5½".

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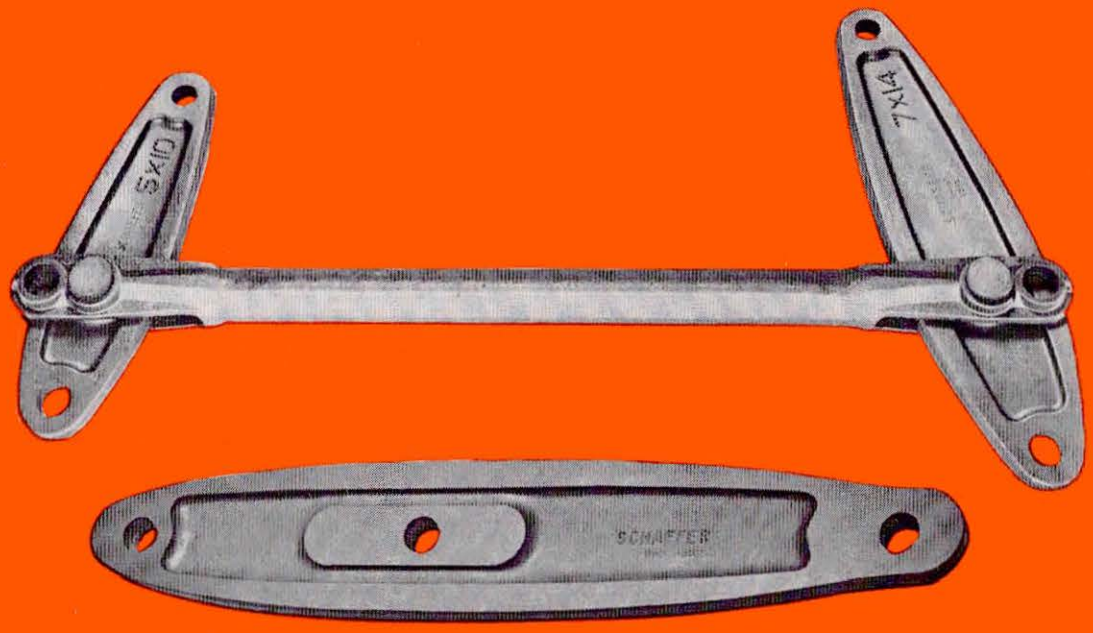

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Circle 44 on coupon page 87

Nordberg announces the new RAIL GANG SPIKER

Here is the machine designed to really speed spiking operations and help save time and money in rail laying and renewal operations. Capable of driving 840 spikes per hour (420 ties per hour), the new 2-man Nordberg® Rail Gang Spiker is self-propelled, using low cost diesel power, and is equipped with hydraulic disc brakes, in addition to an emergency hand brake.

How this new "Mechanical Muscle" works: One man drives the spikes while the other feeds the spikes into the spike trays. The Nordberg Rail Gang Spiker exerts 2,000 psi of hydraulic pressure to *push* spikes into the ties with a smooth, continuous motion—eliminating the possibility of damage to the rail base which might occur from impacting methods. The weight of the Rail Gang Spiker holds the rail against the tie during the spike driving.

In addition to its basic use as a high production rail spiking machine, the versatility of the new Nordberg Rail Gang Spiker is increased through its ability to also drive anchor spikes. This added feature is accomplished by making a slight adjustment in the spiking heads.

Call or write today for further information on this newest addition to the long list of money-saving Nordberg Mechanical Muscles®.

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MECHANICAL MUSCLES®

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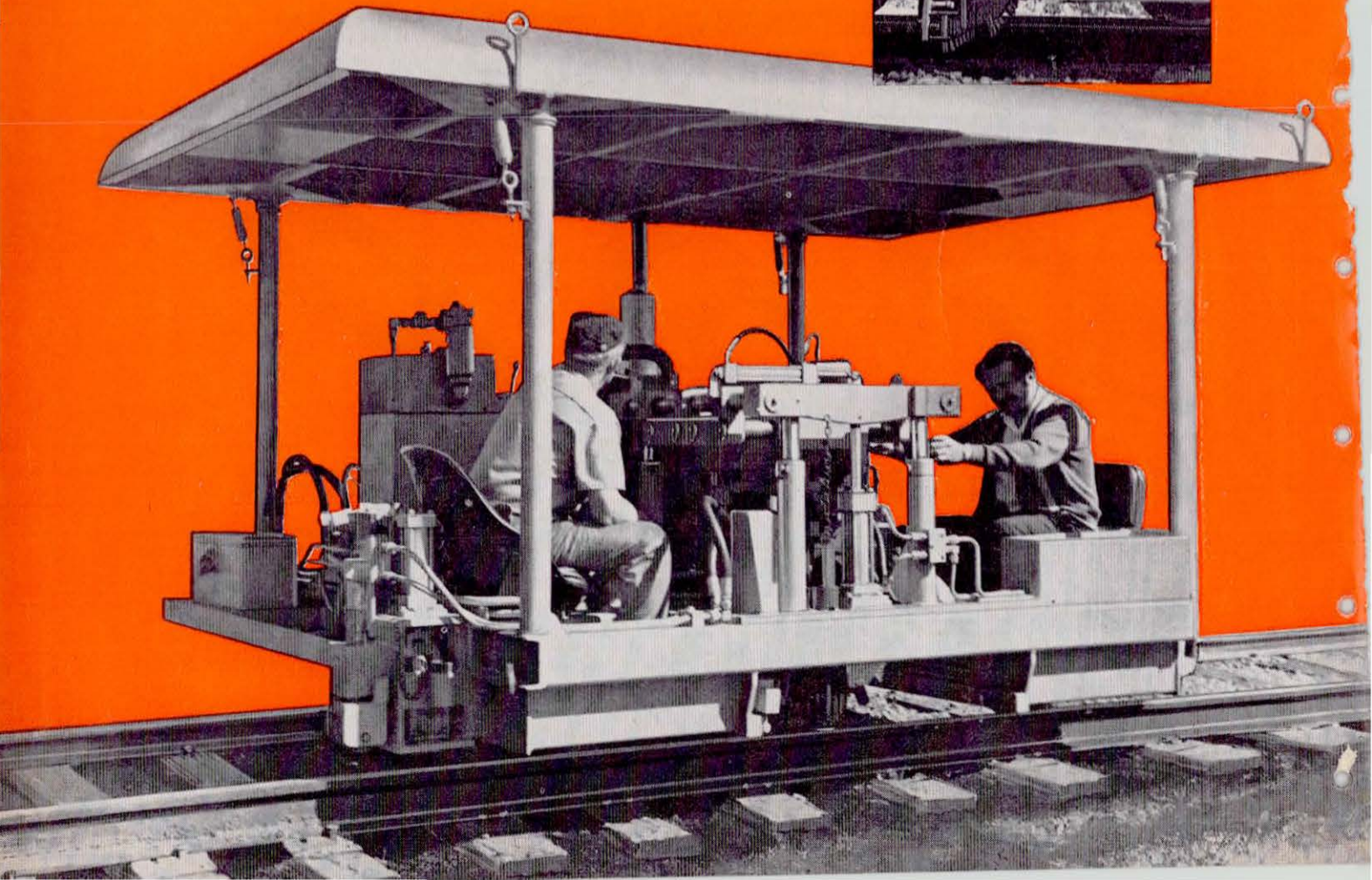
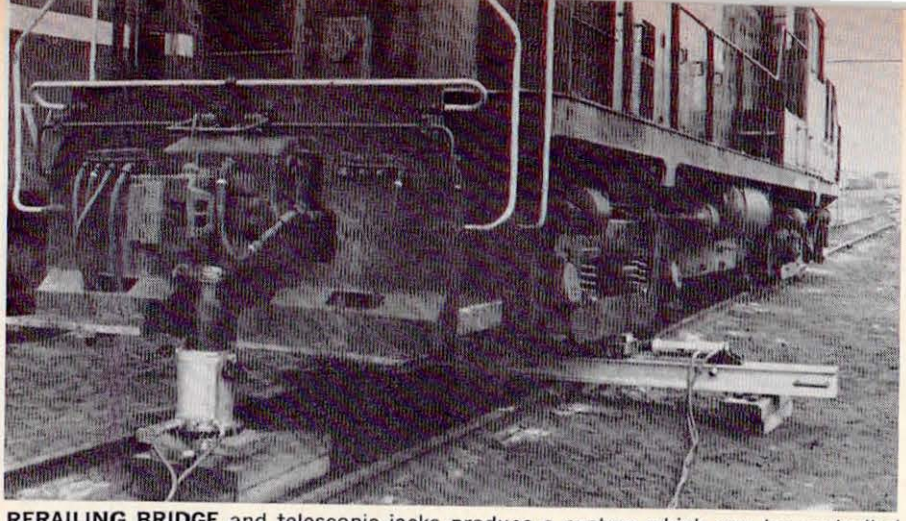
R270

■ Working view of the new Nordberg Rail Gang Spiker, showing one man operating spiking mechanism while the other feeds spikes into spike trays. Rail clamps at either end of the machine keep the machine from moving. ■ Close-up view at right shows how spikes are fed into the spike trays, and lowered into position for rapid spiking.





RERAILING BRIDGE and telescopic jacks produce a system which can be controlled from one point, allowing operator to view all phases of the operation.

Rerailing: New way to meet old problem

POWER UNIT on truck (left) actuated hydraulic system for jacks being put under a derailed box car.

For three months a set of German-built rerailing equipment has been under appraisal in the U.S. Most experience has been on Penn Central's Philadelphia Division where the mechanical department is "much enthused," in the words of G. Hommerich, master mechanic.

Often the lighter, smaller rolling stock of Europe tends to make American railroaders reject associated equipment, virtually without investigation. Not so with the Hoesch MFD hydraulic rerailing system which has gained considerable respect in a relatively short time among several U.S. users.

While the coordinated system of jacks, horizontal transfer devices and associated units is new in North America, Maschinenfabrik Deutschland first marketed a hydraulic rerailing device in 1926. Soon railroads in Germany and elsewhere adopted the system. For many derailments it makes unnecessary the calling of a wrecking train, allows rerailing to proceed without obstructing adjacent tracks, and usually results in no additional damage to equipment going back on the rails.

All American railroads already make extensive use of jacks in rerailing operations. Probably the system concept of the Hoesch system is its most distinguishing feature. The rerailing bridge, the roller carriage and the special low-profile telescopic jacks are all designed to operate in conjunction with each other and with other related components. High hydraulic pressures (in excess of 4,000 psi) and lightweight metal alloys produce compact units, the largest of which is capable of being handled by a maximum of four men. A control unit with console (or "desk" as its German builders identify it) allows up to four separate moving systems to be coordinated by a single operator from a point where he can view the entire rerailing operation. This increases both the speed and safety.

● **Horizontal movement.** The attention given to horizontal movement is a feature which has not been so completely developed by other jack manufacturers. Actually, the rerailing equipment also finds application in the raising and transfer of highway and railway bridges. Here the telescopic jack comes into its own, eliminating the need for blocking and resetting of the jacks in the course of a lift.

Penn Central's South Philadelphia mechanical forces have found that the Hoesch equipment increases substantially the flexibility of its highway truck regularly used for rerailing operations. Where formerly it was often necessary to have a locomotive at the scene to pull a derailed car back on the track after rerailers had been placed, the truck and its crew now often do the entire job themselves. This means that usually it is not necessary to have a road or yard crew and locomotive standing by during rerailing.

The Hoesch hydraulic pump can be driven by an electric motor, by hand, or with a small gasoline engine (which PC has been testing). High-pressure hose lines allow the engine to be put far enough from the actual work that its noise will not interfere with normal voice communication between members of the rerailing crew.

● **Major savings.** It is when the Hoesch rerailing equipment makes it unnecessary to operate a wrecking train with all the attendant manpower that there can be very substantial savings. Even its most enthusiastic proponents concede, however, that there are situations where the hydraulic equipment would be incapable of doing a job as effectively as a regular wrecking crane.

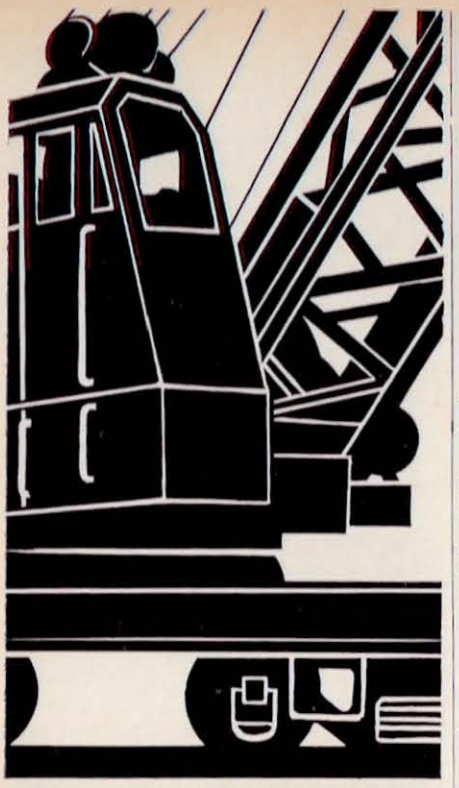
When trackside terrain is too irregular, when derailed equipment is too far from the track, or when there is an adjacent track from which a crane can operate, the Hoesch equipment may be outperformed by more traditional methods. On the other hand, PC crews have found that the new equipment often performs beyond expectations.

In one situation where several grain-laden 100-ton covered hoppers derailed, the rerailing equipment was used for moving one car laterally from a badly damaged track to one adjacent so the former would be available to m/w forces for rebuilding. One participant observed that this track-to-track transfer was not done as rapidly as could have been done by a crane, if it could have gotten to the car in question. In this case, however, the positions of the cars after derailment prevented the wrecker from being where it was needed most.

On a remote spur track the Hoesch equipment was used to rerail a locomotive and three cars in a location which a wrecker would have had difficulty entering. Because of the portability of the components and the fact they are not restricted to the track, the hydraulic rerailers often can be used to begin work at a point which would not be practicable by other methods.

Master Mechanic Hommerich explains that effective use of the new units does require considerable planning so that it will be possible to place jacks for a minimum of subsequent movement and so that horizontal transfers can be completed without running off the rerailing beam.

In addition to potential railroad customers, American Hoesch has excited considerable interest from major industrial firms with their own sidings or rail networks. For them, in-plant derailments often prove particularly expensive and the promise of a rerailing system operated by their own personnel appears particularly attractive. ■



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E. van S. Claxton
GE

Stanley Brown
P-S

Jack M. Dershimer
Thrall

R. B. Oppenheimer
North American Car

TRANSIT

Edmund van S. Claxton has been appointed general manager, Transit Systems Department, **General Electric Co.**, Erie, Pa., succeeding **Norman W. Seip,** who is consultant—Transit Systems Division. Mr. Claxton was formerly general manager, Military Product Support Department at Lynn, Mass., and Cincinnati, Ohio.

Deane N. Aboudara has been appointed project manager, Transit Systems Department, **General Electric Co.**, Erie, Pa. He was formerly general superintendent, Plant and Equipment Group, **San Francisco Bay Area Rapid Transit District.**

Ronald Berman, assistant commissioner for public transportation, **New Jersey Department of Transportation,** Trenton, resigned May 8 to undertake a study of "Air Pollution Control in New Jersey" for the Council on Law Related Studies.

Richard F. Schroeter, who retired from the **New York City Transit Authority** after 30 years of service, has joined **De Leuw, Cather & Company,** the general engineering consultants for the Washington, D.C., subway system.

Joseph C. Kelly, treasurer-controller, **Massachusetts Bay Transportation Authority,** Boston, has been appointed acting general manager, succeeding **Leo J. Cusick,** who resigned June 1.

Vincent P. Kovalcik, supervisor, systems design, **General Railway Signal Co.,** Rochester, N.Y., has been appointed market planner, with responsibility for co-ordinating GRS planning and technical activities in the rapid transit market.

SUPPLY TRADE

Stanley Brown, vice president and manager of field sales, **Pullman-Standard Division** of **Pullman Inc.,** has been appointed vice president of marketing, to succeed **Charles J. Hurst.**

Jack M. Dershimer, purchasing agent, **Thrall Car Manufacturing Co.,** has been advanced to director of purchasing.

Robert B. Oppenheimer has been elected executive vice president-operations, **North American Car Corp.** Mr. Oppenheimer was formerly vice president and general manager, **Railroad Car Division.**

Donald F. Morris
PORTEC

Robert E. Budorick
ICSI

Donald F. Morris has been named vice president, finance and treasurer, **PORTEC Inc.** As treasurer, Mr. Morris, who was formerly treasurer and chief financial officer, **Oshkosh Truck Corp.,** Oshkosh, Wis., replaces **Robert E. Mitchell,** resigned.

Michael C. Kluge has resigned as chairman of the board, president and treasurer and a director, **Integrated Container Service Industries Corp.** and its subsidiaries, New York. **Richard T. Norton** has resigned as a director and officer of the company and as vice president—finance of its operating subsidiaries. **Robert E. Budorick,** who will remain as president and chief executive officer of the **Realco** subsidiary, will also assume the presidency of Integrated Container Service Industries Corp. **James P. Thrasher,** previously executive vice president of the ICS subsidiary, has been appointed president and chief executive officer of the subsidiary and vice president of the parent company.

Holt F. Farley has been named manager of transportation sales for **Kinedyne Corp.,** Mountainside, N.J.

Virginia Railway Supply Co., Suite 220 Patrick Henry Hotel, Roanoke, Va. 24011, is a newly formed supplier to the railroad industry.

Walt Hutchinson has been named regional sales manager of railroad products, **Transco Inc.,** Chicago.

OBITUARY

Frank L. Noakes, 66, grand lodge secretary-treasurer, **Brotherhood of Maintenance of Way Employes,** died May 5 in a Detroit-area hospital.

William Page, Sr., 73, vice president-engineering, **Harbil, Inc.,** Chicago, died May 11 at his home in Winnetka, Ill.

Ask WABCO about Ex-Cell-O's track record.

Westinghouse Air Brake Division demands a lot of itself. And consequently delivers a lot to its customers. Brakes that stop today's high-speed, high-mileage freight cars faster and more economically.

As a result, the WABCOPAC brake assembly is one of the most widely accepted braking systems in the industry.

One of the ways WABCO stays on top is with Ex-Cell-O F Series Pins—the toughest you can buy. Pins that roll hundreds of thousands of proven maintenance-free miles.

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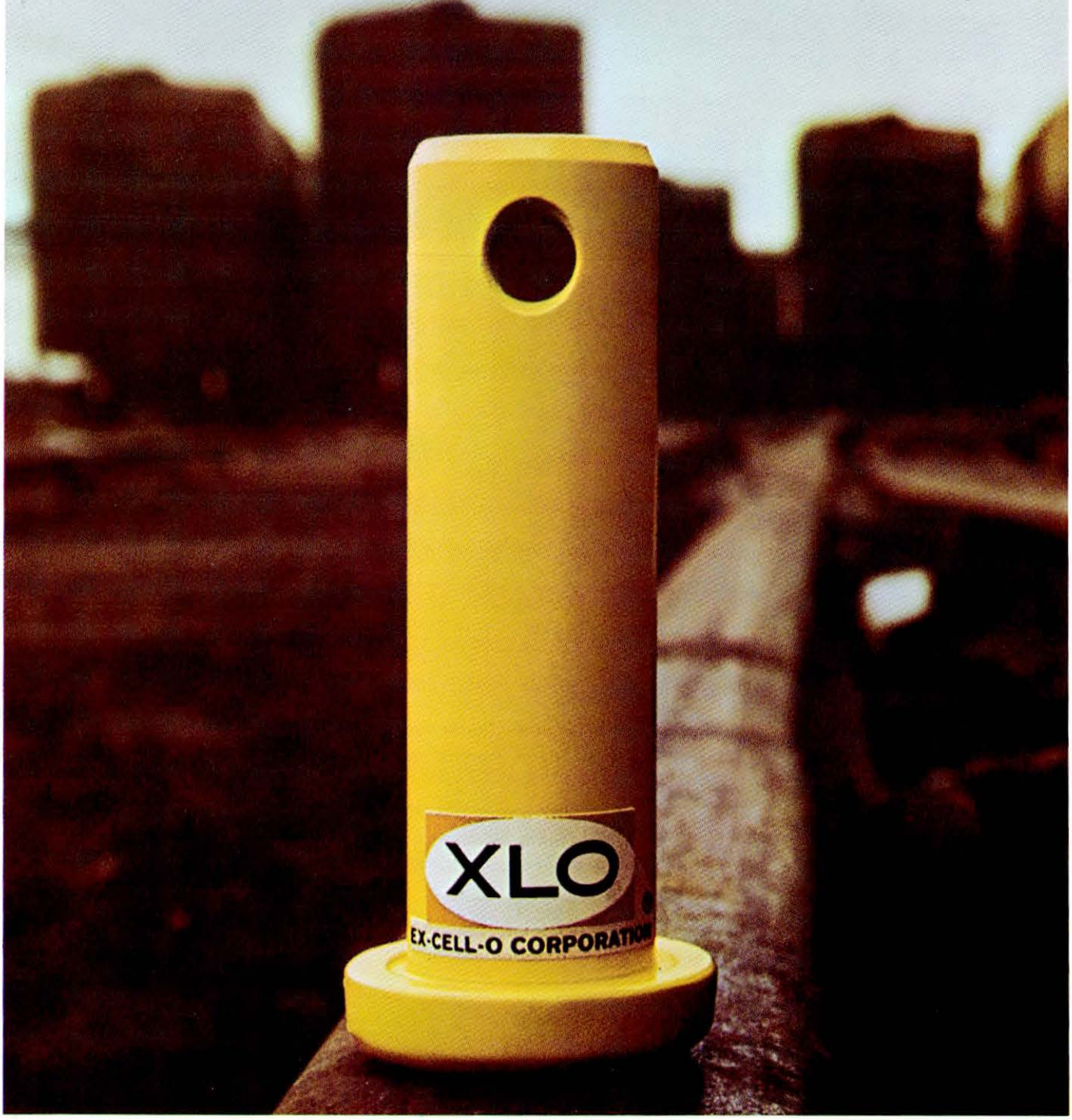

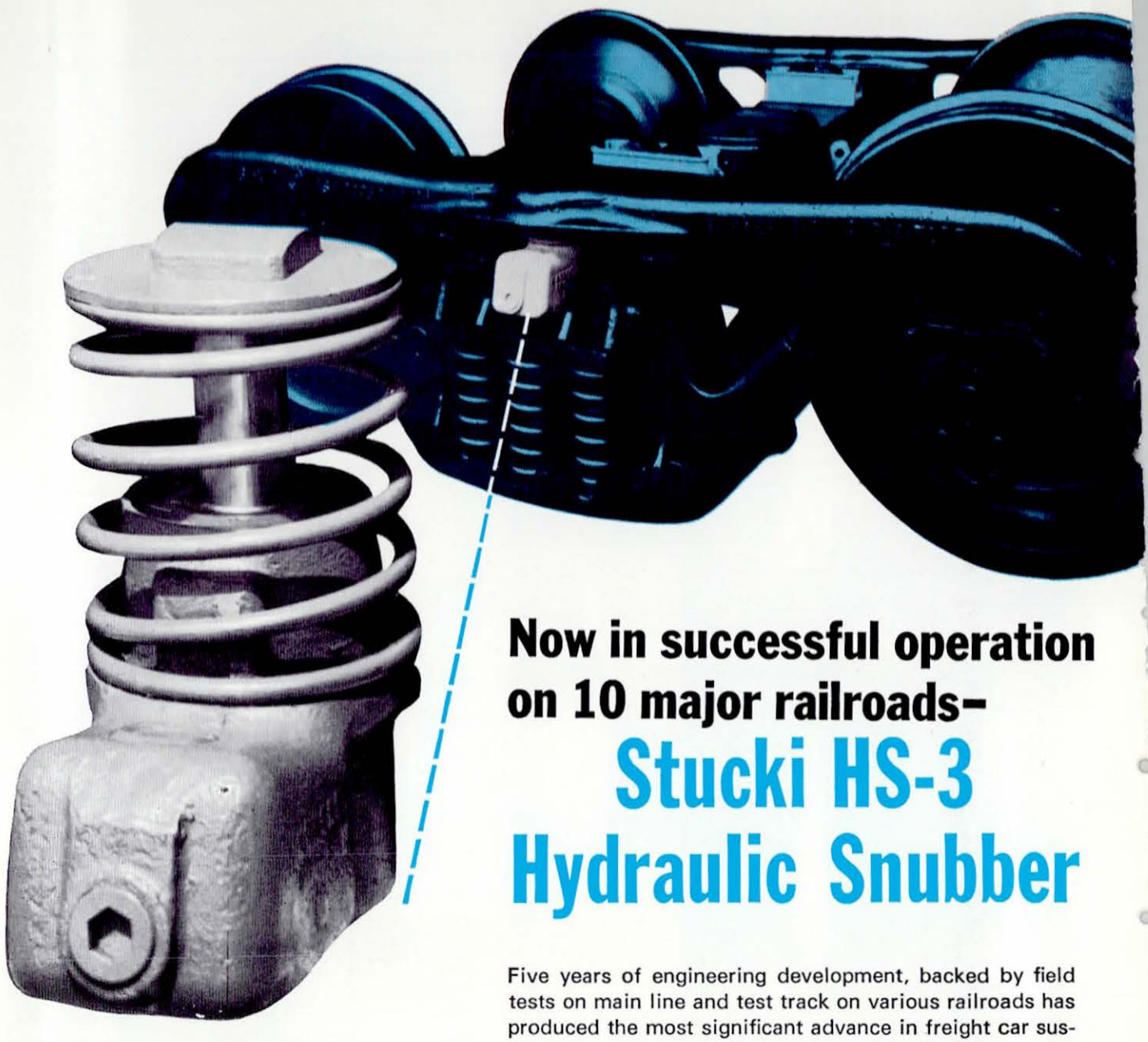

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Five years of engineering development, backed by field tests on main line and test track on various railroads has produced the most significant advance in freight car suspension—the Stucki HS-3 Hydraulic Snubber. It virtually eliminates wheel lifts at all speeds. Located between the top of the bolster and the upper chord of the side frame, this hydraulic snubber reduces weight shift and damaging high loads by absorbing the spring rebound energy. The spring nest is unaltered, so that it acts in its normal cushioning manner.

The Stucki HS-3 snubber is completely confined within the truck—nothing protrudes to be damaged in service. Designed and built to give years of maintenance-free service by A. Stucki Company, manufacturer of quality equipment for railroads since 1911. Brochure giving full description with typical results from tests with various types of suspensions sent on request.

Dramatic Advance in Freight Car Suspension

- **Controls lateral rocking with hydraulics**
- **Reduces weight shift on bolster**
- **Reduces high loads on truck and track**
- **Improves tracking ability on rough track at all speeds**

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Market Outlook

CARLOADINGS

Loadings of revenue freight in the week ended May 30 totaled 557,584 cars, the Association of American Railroads announced on June 4. This was a decrease of 17,572 cars, or 3.1%, compared with the previous week; an increase of 19,558 cars, or 3.6%, compared with the corresponding week last year; and an increase of 28,276 cars, or 5.3%, compared with the equivalent 1968 week. Ton-miles generated by carloadings in the week ended May 30 are estimated at 15.1 billion, an increase of 4.4% above the corresponding week of 1969, and 10% above the 1968 week.

REVENUE FREIGHT CARLOADINGS

Commodity	May 23 week	May 16 week
Grain	24,233	24,029
Farm products	14,074	12,858
Metallic ores	55,495	52,809
Coal	101,719	100,931
Crushed stone, gravel & Sand	31,996	32,017
Nonmetallic minerals	11,215	11,028
Grain mill products	19,018	18,669
Food & kindred products	26,282	25,601
Primary forest products	26,657	25,704
Lumber & wood products (except furniture)	14,982	15,029
Pulp, paper & allied products	24,025	24,102
Chemicals & allied products	30,126	31,975
Petroleum products	10,337	10,142
Stone, clay & glass products	21,686	21,607
Coke	8,956	9,259
Metals & products	32,650	34,016
Motor vehicles & equipment	24,971	24,371
Waste & scrap materials	15,640	15,380
Forwarder & shipper assn. traffic	8,033	8,549
All other carloads	72,113	70,105
LCL traffic	948	912
Total cars loaded	575,156	569,093

CUMULATIVE TOTAL, 21 WEEKS	1970	1969	1968
	10,834,893	11,054,072	11,178,681
Estimated revenue ton-miles (billions) 21 weeks	307.7	305.1	299.4

PIGGYBACK CARLOADINGS

U. S. piggyback loadings for the week ended May 23 totaled 25,229 cars, carrying 41,896 trailers, compared with 26,603 cars, carrying 43,158 trailers, in the corresponding 1969 week. Loadings for 1970 up to May 23 totaled 507,596 cars, carrying 853,559 trailers, compared with 535,662 cars, carrying 878,629 trailers, in the corresponding period of 1969.

IN CANADA

7 days ending	Revenue Cars Loaded	Cumulative Totals
May 7, 1970	77,599	1,274,588
May 7, 1969	77,452	1,292,867

FREIGHT-TRAIN CARS

● *Celanese Corp.*—Has purchased 44 aluminum tank cars from AMF Beaird, Shreveport, La. Thirty-nine of the cars have load capacities of 35,000 gallons each, five have capacities of 21,000 gallons. All cars are roller-bearing equipped. AMF Beaird, an independent railroad car builder, is completing a $1.5-million expansion and modernization program to accommodate new business. Facilities are expected to be completed by August 1.

● *Chesapeake & Ohio.*—Will build 1,600 additional 100-ton, open-top hopper cars at a cost of $18.8 million. The roller-bearing-equipped cars will be built at the Raceland Car Shops, Russell, Ky. Work is scheduled to begin late next August and to be completed in mid-January 1971.

LOCOMOTIVES

● *Burlington Northern.*—Placed its first order for locomotives —eight 1,000-hp diesel-electric units, costing $1.2 million. Delivery from EMD is scheduled for November. Together with orders placed earlier by roads participating in the BN merger, this raises the BN's total order for 1970 to 65 units.

● *CP Rail.*—Ordered 15 2,000-hp, four-axle diesel-electric locomotives from General Motors Diesel Ltd. at an approximate cost of $4.5 million. The road-switcher-type units, to be constructed at GM's London, Ont., plant, will be used for local mainline and heavy branch line freight movements. Delivery is scheduled for the fourth quarter of 1970.

TRANSIT

● *Illinois Central.*—General Electric has received the order for propulsion and electric braking equipment for 123 double-deck commuter cars to be operated by the IC. The cars are being built by the St. Louis Car Division of General Steel Industries. The equipment includes 160-hp traction motors, single reduction gear units, cam-magnetic controls, pantographs, fast-response dynamic braking and motor alternator sets. Delivery of the cars is scheduled for this year.

● *New York City Transit Authority.*—Westinghouse Electric Corp. has received a multi-million dollar order for propulsion and control equipment for 240 NYCTA rapid transit cars. The order was from the St. Louis Car Division of General Steel Industries, which will supply 255 cars to NYCTA at a unit cost of $213,400. Westinghouse will supply motors, gears, propulsion controls, automatic train controls and diagnostic test equipment.

MAINTENANCE OF WAY

● *Penn Central.*—Will step up maintenance-of-way operations in the Central Region, to include track leveling over 1,400 miles of track and ballast cleaning over 1,000 miles. Crossties will be renewed over 431 miles; 77 miles of rail will be replaced.

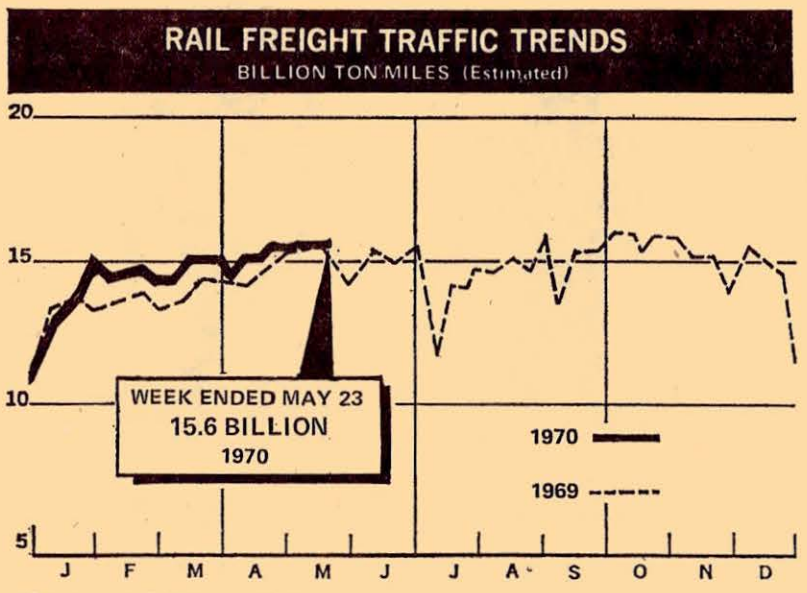
NEW FACILITIES

● *Port of New York Authority/Penn Central.*—A rail container transfer yard will be built by the PONYA at Port Newark at an estimated cost of $1,621,000. The yard, to be operated by the PC, will permit the road to handle containers and trailers directly by rail to and from Port Newark and the adjacent Elizabeth-Port Authority Marine Terminal. That will eliminate the substantial expense of hauling containers over congested highways between the port area and PC's existing piggyback yards at Kearny and North Bergen, N.J. Initially, the facility will be able to handle trainloads of about 60 cars. As volume grows, capacity can be almost doubled. Completion of the facility, which will be leased to PC for 20 years, is scheduled for next December.

FOREIGN

● *Cameroon.*—Received a $5.2-million World Bank loan that will help finance a $20.6-million railway modernization program. Major projects will involve purchase of new rolling stock and rehabilitation of track.

● *East Africa.*—A $42.4-million World Bank loan to the East African Railways Corp. will help finance a $90-million four-year development program which contemplates purchases of new diesel locomotives and freight cars; track improvements; construction of new classification yards and repair shops; and signaling/communications improvements.



Source: Association of American Railroads

NEW ORDERS FOR MACHINE TOOLS*

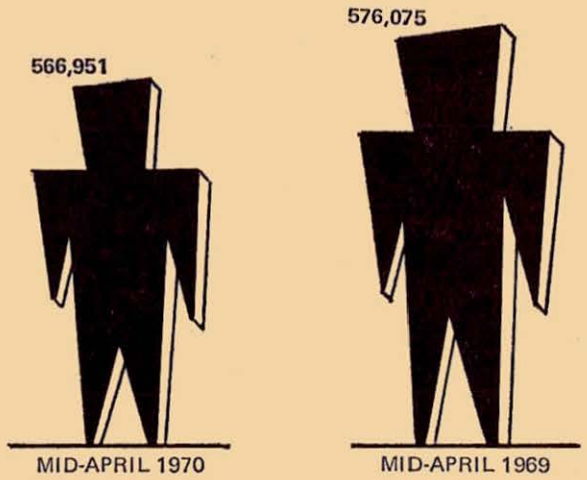
	April 1970 ($000)	April 1969 ($000)	4 mos. 1970 ($000)	4 mos. 1969 ($000)
Metal cutting tools	58,200	182,350	289,250	482,600
Metal forming tools	23,750	90,200	98,100	217,950

MACHINE TOOL SHIPMENTS*

	April 1970 ($000)	April 1969 ($000)	4 mos. 1970 ($000)	4 mos. 1969 ($000)
Metal cutting tools	81,350	101,100	360,750	390,550
Metal forming tools	34,450	29,050	155,700	123,700

*Including foreign and domestic.
Source: National Machine Tool Builders' Association.

RAILROAD EMPLOYMENT
(CLASS I LINE-HAUL RAILROADS)



Source: Bureau of Accounts, ICC.

All statistics compiled, computed and formatted by TRADE*QUOTES Division of National Information Services, Inc. Cambridge, Mass. 02139

RAILWAY AGE Stock Report

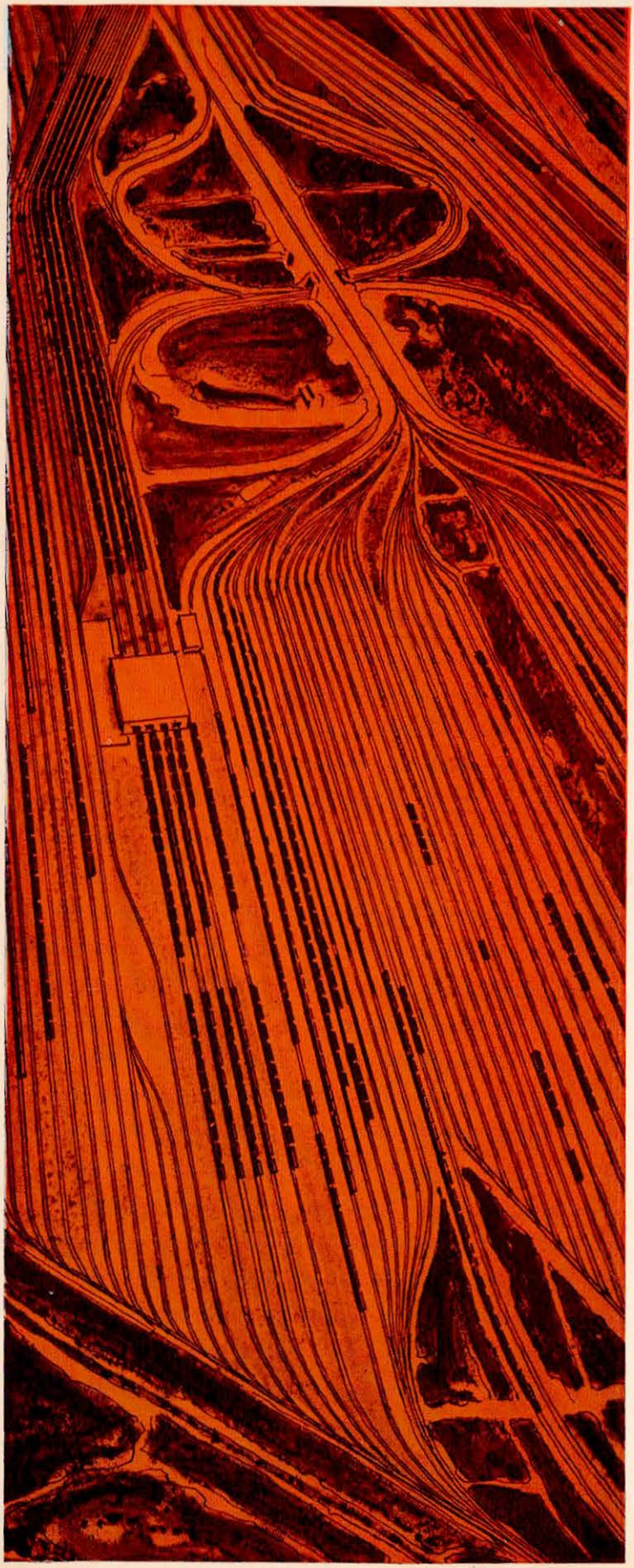
TWO WEEKS ENDED FRIDAY, MAY 29, 1970

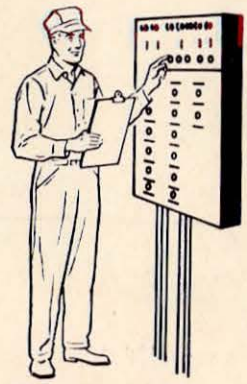
	PRICE 1970 RANGE (1)	PRICE 1 YEAR AGO	PRICE CLOSE MAY 29 1970	PRICE 2 WKS NET CHNG	PRICE 2 WKS PCT CHNG	VOLUME 2 WKS IN 00'S	VOLUME LAST 2 WKS 00'S	VOLUME AVGE IN 00'S (2)	INDEX PRICE JAN 2 1970	INDEX CHNG TO DATE (1)	INDEX PCT CHNG
RAILROADS											
BURLINGTON NORTHERN	30- 41	N/A	34 1/2	+ 1/4	+0.7	577	776	916	40 5/8	-6	-15.0
CHESAPEAKE & OHIO	48- 59	66 1/8	50 3/4	- 5/8	-1.2	393	277	290	54 3/4	-4	-7.3
CHIC MILW ST.P & PAC	8- 20	46	9 1/4	-2 3/4	-22.9	513	314	467	16 3/8	-7	-43.5
CHIC, ROCK ISL & PAC	13- 22	28 7/8	15	-1 5/8	-9.7	86	27	46	19 3/4	-5	-24.0
DERECO PFD B	42- 64	62 5/8	45	-2 3/8	-5.0	176	134	80	53 3/4	-9	-16.2
GULF, MOBILE & OHIO	55-175	94	57	-8 3/4	-13.3	54	36	37	63 1/2	-7	-10.2
LOUISVILLE & NASHVLL	58- 74	82 3/8	59 3/4	-4 7/8	-7.5	117	63	92	71 1/4	-12	-16.1
MISSOURI PACIFIC A	57- 68	80 1/2	57 1/4	-4 3/4	-7.6	31	9	13	63 1/4	-6	-9.4
NORFOLK & WESTERN	63- 86	95 5/8	68 5/8	-2 3/8	-3.3	669	504	611	83 1/2	-15	-17.8
READING CO	6- 17	24	6 3/8	-2 5/8	-29.1	303	58	145	12 1/4	-6	-47.9
ST LOUIS-SAN FRNCSCO	31- 45	45 5/8	33 7/8	-3	-8.1	116	284	130	40 3/8	-7	-16.0
SOO LINE	21- 31	35 3/4	24 1/4	- 1/8	-0.5	182	68	64	27 1/4	-3	-11.0
SOUTHERN	44- 50	52 1/8	47 1/2	+ 1/4	+0.5	353	532	451	46 3/4	+1	+1.6
WESTERN PACIFIC	14- 23	35 1/8	14 7/8	- 1/2	-3.2	207	245	359	19 1/2	-5	-23.7
DIVERSIFIED COMPANIES											
CANADIAN PACIFIC	49- 75	87 5/8	52	-2 1/4	-4.1	118	179	174	73 1/2	-22	-29.2
ILLINOIS CENTRAL IND	17- 31	40 5/8	20 3/4	-1	-4.5	599	214	690	30 5/8	-10	-32.2
KATY INDUSTRIES	7- 14	18 7/8	8 1/8	-1 3/8	-14.4	506	201	286	10 5/8	-3	-23.5
NORTHWEST INDUSTRIES	9- 17	24 7/8	11 1/8	-1	-8.2	1399	1198	1414	13 3/4	-3	-19.0
PENN CENTRAL CO	12- 35	54 5/8	12 5/8	-2 5/8	-17.2	16100	6886	4276	29 1/2	-17	-57.2
RIO GRANDE INDUST	9- 14	17 1/4	10 5/8	+ 1/2	+4.9	203	131	166	11 3/4	-1	-9.5
SANTA FE INDUSTRIES	20- 26	31 1/2	23 5/8	+ 1/8	+0.5	1991	1170	1477	25	-1	-5.5
SOUTHERN PACIFIC CO	26- 37	39 1/4	29 1/4	+ 1/2	+1.7	1556	1688	1412	33 1/4	-4	-12.0
UNION PACIFIC CORP	31- 48	N/A	36 1/4	+ 5/8	+1.7	1682	1132	859	46	-10	-21.1
MOTOR CARRIERS											
ASSOCIATED TRANSPORT	7- 12	15 5/8	7 5/8	+ 1/8	+1.6	193	112	112	11 3/4	-4	-35.1
CONSOL FREIGHTWAYS	24- 31	32 1/8	25	- 1/2	-1.9	528	826	682	28 1/2	-4	-12.2
MC LEAN TRUCKING CO	31- 45	52 1/4	32 3/4	-2 1/2	-7.0	121	48	129	44 3/8	-12	-26.1
OVERNITE TRANSPORT'N	17- 23	26 3/4	20 5/8	+ 5/8	+3.1	86	102	86	18 5/8	+2	+10.7
PAC INTERMTN EXPRESS	12- 18	22 3/4	13 5/8	+ 1/8	+0.9	92	76	188	15 3/4	-2	-13.4
ROADWAY EXPRESS	20- 27	25	22	-2 1/4	-9.2	(3)	-	-	26 1/2	-5	-16.9
TRANSCON LINES	9- 13	18 7/8	8 3/4	-1 1/8	-11.3	229	270	512	11 1/2	-3	-23.9
YELLOW FRGHT SYSTEM	20- 27	28	19 3/4	-1	-4.8	(3)	-	-	25 1/2	-6	-22.5
AIRLINES											
AMERICAN AIRLINES	19- 31	34 5/8	24 1/8	-1	-3.9	4169	1426	3696	31	-7	-22.1
DELTA AIR LINES	24- 35	36 1/8	28 1/2	+ 3/4	+2.7	2189	2800	2007	30 3/4	-2	-7.3
EASTERN AIR LINES	12- 19	23 3/4	14 1/8	-1 1/4	-8.1	3009	2143	2723	15 1/2	-1	-8.8
TRANS WORLD AIRLINES	12- 26	40 1/8	12 3/8	-1 1/4	-9.1	3297	2732	2696	23 7/8	-12	-48.1
UAL INC (UNITED)	16- 28	38 3/4	18 1/4	0	0.0	1958	2273	2211	28	-10	-34.8

ALL BUT TWO OF THE ABOVE SECURITIES ARE LISTED ON THE NEW YORK STOCK EXCHANGE; ROADWAY EXPRESS AND YELLOW FREIGHT SYSTEM ARE TRADED OVER-THE-COUNTER.

(1) TO NEAREST DOLLAR
(2) AVERAGE TWO-WEEK TRADING VOLUME SINCE JANUARY 1, 1970
(3) VOLUME IS NOT REPORTED FOR OVER-THE-COUNTER ISSUES

THE NEW YARDS...





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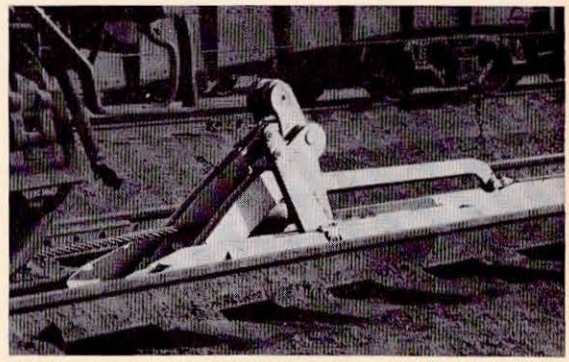

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MEMBER RPI RAILWAY PROGRESS INSTITUTE

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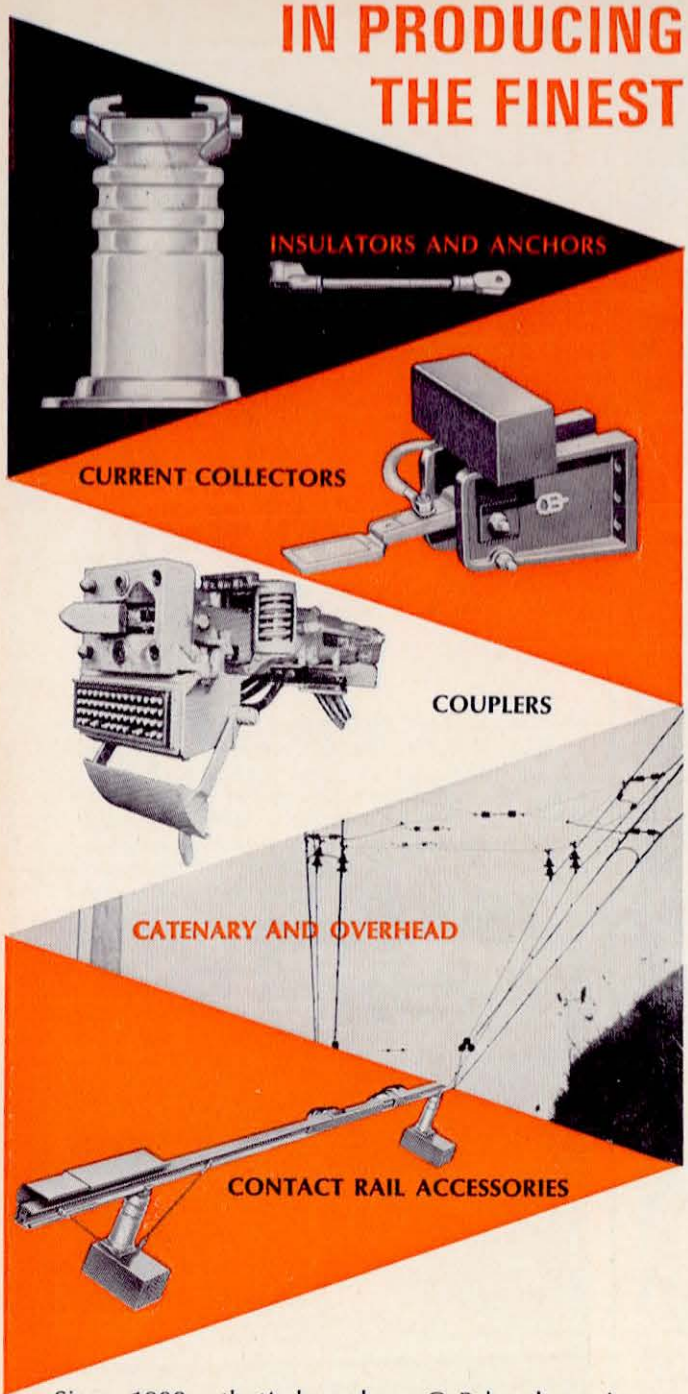

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Viewpoint

Federal aid, yes. But how much? What kind?

We hold these truths to be, at last, self-evident:

(1) Railroads play an irreplaceable role in this nation's economy. That role must expand if the transportation demands of the future are to be met.

(2) To gear up for the task, railroads should right now be investing $3 billion a year in capital improvements.

(3) What they are actually spending, in the best of years, is about half that amount—and no railroad man, or other competent observer, feels that railroads can generate the added capital on their own.

No one disputes these things—and no one disputes that it logically, if unhappily, follows that the needed infusion of new capital must come through some kind of Federal aid (though not nearly as much as Washington has poured into competing transportation enterprises).

The questions are: How much aid? And what kind?

When he was president of the Western Maryland, Arthur Grotz suggested that it might be necessary to sell roadways to the government and then lease them back—much as the motor carriers, the airlines, and the water carriers "lease" their own roadways from the government in return for user charges.

Mr. Grotz' bold proposal is talked about, if at all, in guarded whispers.

Equally urgent is the question of freight equipment. The Federal Railroad Administration is studying the possibility of a government-provided emergency freight-car fleet. Senator Pearson of Kansas has already introduced a bill that would provide $120 million for a Department of Defense fleet that would relieve some of the pressure on railroad-owned cars.

Meanwhile, Consultant Fred H. Tolan, chairman of the legislative committee of the National Industrial Traffic League, has proposed the creation of an independent Federal corporation whose debt for large-scale box-car procurement would be guaranteed by the government.

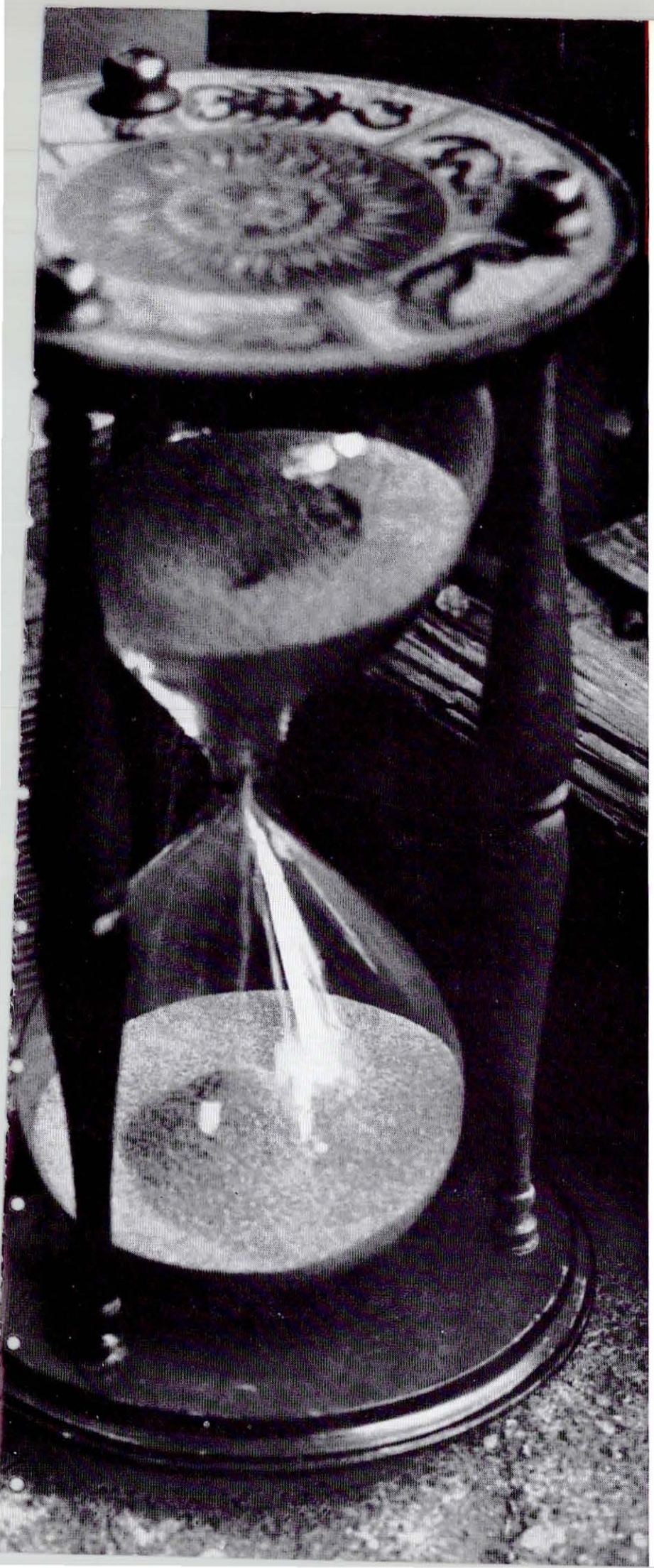
So far, no cohesive industry position has emerged on any of these matters. The initiative is in most cases being seized by concerned parties outside the industry—with the result, many observers fear, that railroads are again going to be forced into a position of reacting, rather than acting.

TIME LAGS CAN BE COSTLY

A dozen years ago, there were those within the railroad industry—including this magazine—who contended that Federal assistance was needed to bail the railroads out of an impossible passenger situation. They were roundly denounced as socialistic.

But 10 years later the AAR board accepted this thesis as an industry stance—with the result that today railroads have a better than even chance of being relieved of the passenger burden.

Will it take another 10 years for the industry to agree on how much Federal assistance it needs to stay competitive with those modes that are already getting it—and what kind of form this assistance should take—and how they are going to go about the task of getting it?



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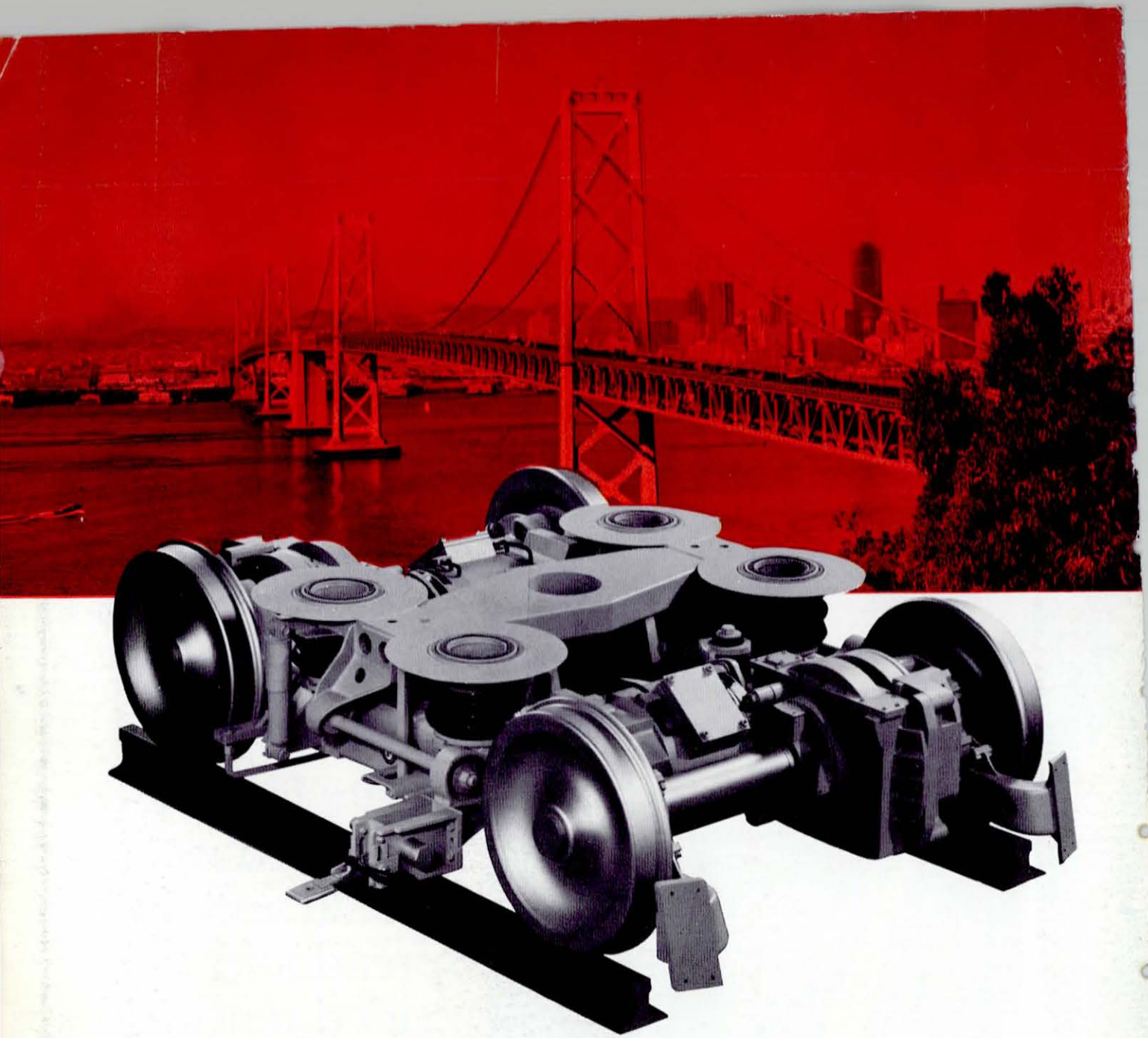

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